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ORIGINAL ARTICLES.

INTRAPLEURAL COMPLICATIONS IN PULMONARY TUBERCULOSIS.[1]

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FAIRLY close observation of over fifteen hundred cases of pulmonary tuberculosis in private work has demonstrated the frequent association of intrapleural complications, and their practical influence in determining final results. The object of this paper is to call attention to some of these more important conditions, to suggest briefly a few of their diagnostic considerations, to elaborate their prognostic import, and to emphasize their rational management. No attempt is here made to present new features of diagnosis or to introduce innovations of treatment, either in the manner of operation or mechanical appliances. Non-recognition of the existence of pleuritic complications is occasioned in the majority of instances, not because of any absence of readily available data for this purpose, but through failure to apply the established principles of diagnosis to the evidence presented. In like manner the unfortunate results of treatment frequently are not due so much to the lack of adequate therapeutic measures which could be employed, as to the misconception of their rational scope in individual instances. It may be said parenthetically, that, unlike many diseases of the lungs, the primary obstacles to success in the management of these complications may not be ascribed to delayed diagnosis. It is a humiliating reproach to state that not infrequently the interests of the patient would be better subserved if the condition remained entirely unrecognized. The justice of this direct reflection upon the management in the way of occasional meddlesome and unwarranted surgical interference will be explained later. While early diagnosis must be encouraged through actual thorough examinations of the chest and the accurate recognition of physical signs, yet the essential consideration for successful results consists in a correct interpretation of the prognostic significance and an intelligent appreciation of the rationale of remedial indications. It should be stated as a preliminary postulate that the existence of pulmonary tuberculosis in an individual, very materially modifies the consideration of those surgical methods which may be styled operations of expediency. At the same time the consumptive is entitled by virtue of every instinct of humanity, no matter how hopeless his condition, to the fullest measure of surgical aid, in conditions involving so-called operations of necessity. My conclusions are derived from the mistakes as well as the successes incident to my personal experience. More of real benefit sometimes accrues from the opportunity to witness the deplorable results of mistaken judgment than from the elated observation of a successful issue following a fortunate but, perchance, snap choice of procedure. In support of views to be presented perhaps a few selected and illustrative cases properly should be introduced. A more or less comprehensive review of such cases will be permitted in another paper.

The intrapleural conditions in the course of pulmonary tuberculosis to be considered in this connection are: (1) Pleurisy with serous effusion; (2) empyema; (3) pneumothorax; (4) pneumopyothorax.

Pleurisy with Effusion.—That this condition is much more frequent than generally supposed is explained largely by the fact that it is often overlooked. Provided an effort is made to conduct a thorough painstaking chest examination, it is difficult to conceive how a moderate or large pleural effusion, presenting such classic physical signs as area of flatness with diminished intensity, or absence of voice or breath sounds conforming to the letter S curve, with dislocation of the organs, can remain unrecognized. That such is occasionally true even in typical cases must be regarded as due to faulty and superficial methods of examination. It is by far more often the small effusion that escapes detection, the area of flatness being confined to the lower posterior portion of the chest, sometimes without extending laterally as far as the posterior axillary line. Both friction rubs and respiratory sounds may be plainly heard in some instances. It is readily seen how such an effusion may be overlooked even by careful and experienced examiners. The only precautions necessary to prevent this mistake consists in percussing to the very base of each lung in the back, and outlining the lower borders of resonance for the sake of comparison.

Small and even moderate effusions have often existed among my cases entirely devoid of such rational symptoms to suggest their presence as fever, dyspnea, emaciation, malaise or loss of appetite, their recognition being incident only to the course of periodical examinations. It has been interesting to note that material general improvement has often taken place simultaneously with the development of these effusions. Several years before Murphy proclaimed his treatment of tuberculosis through compression of lung by the introduction of nitrogen gas in the

[1] Read at the Annual Meeting of the Colorado State Medical Society, October, 1904.

pleural cavity, it had been observed by several, myself included, that lung compression by pleural effusion sometimes produced a salutary effect upon the immediate course of tuberculosis, and that the removal of the effusion by aspiration was occasionally followed by an aggravation of some of the annoying symptoms. In my experience the fever attending the course of consumption is sometimes, although by no means always, diminished perceptibly after the development of a small effusion. At the same time is manifested perhaps an improvement in cough with marked lessening of the expectoration, absence of previous pleuritic pains and strangely a material gain in weight. A removal of the effusion, when practised under these conditions several years ago, was occasionally a precursor of an exacerbation of temperature, increase of cough and expectoration, loss of weight and renewed activity of the tuberculous process as shown by the physical signs. This would suggest the positive benefit sometimes derived from the intrapleural compression of lung for the time being, and such is my belief. It should be remembered, however, that this favorable influence of compression does not always obtain even in pleural effusions, that its benefits are usually but temporary, and that no artificial compression either by gas or external contrivances save in exceptional instances, and to fulfil special indications, is to be commended. In other words, it is not the treatment of the tuberculous lung, *per se*, that should constitute the rôle of the medical adviser, but rather the management of the tuberculous individual himself. Laudable as have been the efforts to secure a favorable influence upon the tuberculous process by direct mechanical compression, it must be stated that the clinical results have not been particularly gratifying. Experience has shown that in uncomplicated cases it is rather the dilatation of the air cells and the other physiological changes incident to moderate altitudes that constitutes the desideratum, rather than compression of lung. It is no detraction from the genius of Murphy to allude to the frequent impracticability of his method, and to disparage its adoption for general purposes. It does remain, however, for the practitioner to take cognizance of the practical truth emphasized by his work to the effect that an idiopathic compression from serous effusion may be of distinct value in some cases. The practical lesson relates to whether or not there exists special indications for its removal. Irrespective of the duration and sometimes of the extent of the effusion it is my custom not to resort to aspiration in the absence of fever and dyspnea or of such a degree of mechanical compression as threatens subsequently to seriously embarrass cardiac and respiratory functions. If these conditions exist, however, removal of the liquid becomes imperative and should brook of no delay regardless of all other considerations. The presence of fever in itself, without reference to other rational symptoms or physical signs, does not afford a distinct and reliable indication either for or against aspiration. In conjunction with other clinical facts it may furnish a valuable and sufficient justification for its employment.

It is not my practice, as has been advocated by some, to delay aspiration until fever has ceased, on the ground that the rise of temperature indicates a continuance of inflammatory action, and that with this there must ensue a recurrence of the effusion. If such indications as relate to the pulse and respiration are perfectly clear, aspiration is employed regardless of fever. On the other hand, a persisting fever not previously present attending a moderate effusion without other clinical manifestations suggests the expediency of operation. Without the exhibition of such clearly defined data there is no excuse for resorting to the aspirating needle even to the extent of an exploratory puncture. Those who regard as a myth the danger of converting a serous effusion into a purulent one by the introduction of the needle, have certainly been most fortunate in their technic or have had but little experience. Permit me to state most emphatically that several times in my experience, after a scrupulous disinfection of skin and hands, the introduction of an irreproachable needle has been sufficient to convey an infection into the pleural cavity with the distressing sequelæ attending an empyema. The use of the exploratory needle for diagnostic purposes purely is entirely without any justification whatever in these cases. Given a case of pleural effusion of any nature and extent with any combination of rational symptoms, if the indications for its removal be sufficiently clear, let ordinary aspiration be employed, and with the additional information secured through the gross appearance and the bacteriological examination of the exudate, a subsequent course of procedure can be safely and intelligently conducted. If, however, the indications are not clear on the merits of the clinical symptoms to demand removal, why indulge in meddlesome and dangerous interference simply for the purpose of diagnosis which for the moment is relatively unimportant. Contrary to the opinion entertained by some that the character of the treatment is directly dependent upon the nature of the effusion, and hence the desirability of determining early its precise nature, let it be asserted that among consumptives the question of entering the pleural cavity in any way should be decided purely as previously stated, upon the combination of symptoms and physical signs. In all such cases these should furnish sufficient data to constitute a safe and satisfying working basis without recourse to that refinement of diagnosis which exalts the findings of the laboratory and the autopsy at the expense of the patient himself. In the event that the clinical manifestations warrant the performance of aspiration, or assuming that the pleural cavity has already been entered, it is readily conceded that the future course is subject to some extent to the

character of the effusion, although not entirely so, as will be subsequently shown. The present contention is simply that among pulmonary invalids the precise determination of the nature of the liquid, whether serous or purulent, is entirely unnecessary as regards a future course of action, in view of the guidance and direction afforded by other means. The employment of the exploratory puncture for diagnostic purposes solely is, therefore, condemned. Not until the development of urgent or dangerous symptoms is it necessary to establish such a diagnosis as to involve or justify surgical measures. Ordinary aspiration, when once practised in accordance with authorized principles, should be repeated at intervals as long as the previous condition remains in force, and suspended whenever these conditions cease to exist. If the effusion is found at once to be purulent, or later becomes so, the discussion should be more properly embraced under the ensuing head, empyema.

Empyema.—Ten years ago, in 1894, in a paper entitled "Methods of Treatment of Empyema," read before this Society, it was my privilege to study and review the various measures (as advocated by men of authority), to compare their relative advantages and disadvantages, and to note the peculiar conditions in which each was applicable or contra-indicated.

At that time it was the general dictum of the medical profession that the treatment of all cases of empyema should be that of surgical interference, the only difference of opinion relating to the choice of the method. In the paper referred to the most important preliminary consideration was said to be the influence of the etiology upon the prognosis and treatment. It may be of interest to quote brief extracts from this paper, and ascertain to what extent one can indorse the views then entertained.

"The important practical thought to be emphasized in this connection is the recognition of the existence of several species of bacteria in the exudate, endowed with varying properties and possessing marked differences in their virulence; that the most benign of these characterize the empyemas of children and the metapneumonic pleurisies of adults, and thereby furnish to the physician a justification for not resorting immediately, in all instances, to the more radical and mutilative measures of treatment. The therapeutic indications are conceded to be, first, prompt and thorough evacuation of the pus; second, prevention of a re-accumulation by means of free and continuous drainage and by the maintenance of asepsis; and, finally, the obliteration of the pus secreting cavity through adequate provision for the expansion of the lung and the collapse of the chest wall. Save in extreme cases a general tuberculous infection never contra-indicates an operation from which satisfactory results are frequently obtained."

A single preliminary aspiration was advocated in children and possibly in the metapneumonic pleurisies of adults. "The choice of simple aspiration is not based upon any faith in its adequacy to effect a cure, but is made with an aim to afford temporary relief, and at the same time to establish a diagnosis, admitting that the purulent nature of the effusion, particularly in adults, almost invariably demands subsequent operative measures. Irrigation, as frequently performed, is not only incomplete but is usually superfluous, and is often attended with certain danger."

Then follows at length a review of the indications for the technic of the several methods, with especial mention of the syphon drainage as practised by Potain and Bulan.

Quoting again for a moment, "Immerman, an ardent advocate of syphon drainage, at the Ninth International Medical Congress, held in Vienna in 1890, reported 49 cases directly cured by this method out of a total of 57. Upon the same occasion, Curschman reported 63 excellent results out of 75 cases."

"The aim to be attained in all methods making use of this principle has been to secure the proper continuous drainage, without permitting the entrance of air to the pleural cavity. By this means it was designed to produce the fullest expansion of the lung, and favor the obliteration of the pus cavity by restoring the parts as fully and quickly as possible to their normal conditions. Its chief disadvantages are the occasional entrance of air around the tube, destroying at once the syphon action, the necessarily slow and imperfect drainage accomplished, on account of the weak aspirating force employed, and the liability of the occlusion of the tube by large masses of coagula. Even Immerman admits 'that this method gives good results only in recent empyemas, in which the pus is not too thick.' Pleurotomy consists in the free opening of the pleural cavity, and provides for the immediate and thorough evacuation of its contents. A complete exit is offered to the clots and organic débris and perfect facilities for a continuous discharge. It is my opinion that this method is indicated as an initial procedure in the treatment of all cases of empyema, excluding only the use of the single aspiration in children, previously alluded to. It is admitted that pleurotomy alone will not always suffice for the later treatment of old, protracted cases, owing to the existence of certain complicating conditions. Were this method, however, more frequently employed in the early stages of the disease, before an opportunity be given for the development of unfavorable conditions, there would result far less frequently the necessity for recourse to the severer procedures. The opening by incision into the pleural cavity may be accompanied in some instances, if necessary, by the resection of a small portion of a single rib. This should be distinguished from the multiple rib resection, which of itself constitutes a separate method, is subject to different principles and indicated by other conditions."

For several years following the writing of this paper the conclusions enunciated, derived from the experiences of others, were conscientiously applied to appropriate cases of tuberculosis with almost invariably unfortunate results. The essential principle was to perform pleurotomy upon the consumptive, provided his general condition was not materially impaired, regardless of what is now accepted as vitally important consideration, *i. e.,* fever, chills, sweats, emaciation, etc. The only consideration then was the presence of pus, which demanded prompt evacuation and drainage. If the condition of the patient in far advanced phthisis was desperate, it was thought more merciful to permit him to die without inflicting the added torture of an operation. In the light of a considerable experience, which has been educative if sad, it has become apparent to me that the above course is directly and radically wrong. Observation of numerous cases bear out what might be regarded as an assumption. Some of these cases will be reported at length in a future paper to sustain the position taken, and illustrate the perilous responsibility assumed in advocating the radical operation for those comparatively well, and in withholding such surgical aid from those in urgent need, though apparently beyond hope. The radical operation is necessarily followed either by a sudden expansion of the previously compressed lung, which affords opportunity for renewed activity of the tuberculous process, and usually results in very quick softening and cavity formation, or is attended by failure of the lung to expand and obliterate the pleural cavity, which means long continued pus formation and great danger of amyloid change. In the absence of such clinical indications as fever, sweats and chills, it seems exceedingly ill-considered, not to say foolhardy, to precipitate the patient into the midst of such peril. To witness the spectacle of a rapidly progressive or even long continued decline, with a fatal termination, in one who before operation was well nourished, devoid of fever, and to outward appearances in good condition, and to observe the astonishing recovery from an empyema in one who was at first refused operation by a surgeon as being already moribund, and to be privileged to note his condition improve through a period of two years to a complete arrest of the underlying tuberculous process, and to a permanent resumption of earning capacity, is sufficient to shake the faith in the tenability and wisdom of the previously accepted principles pertaining to a course of treatment to be accorded pulmonary invalids.

My present custom in the empyema of consumptives, particularly if not too far advanced, is to let it alone unless there is some good and sufficient cause for interference along the lines previously suggested. If removal is indicated, simple aspiration is first employed and repeated as frequently as demanded. If even temporary improvement does not attend such a measure, recourse should be had to the syphon drainage of Bulan, as was adopted and reported by Dr. Whitney a year ago. If for any reason the drainage is imperfect and the clinical results not of a satisfying nature, then, and not until then, is it justifiable to resort to the radical measures of opening the pleural cavity, with or without the rib resection in consumptives. The only exception to this relates to thoroughly septic cases with perhaps chills, fever, sweats, great prostration, with an advanced underlying tuberculous infection, and preferably with the empyema well circumscribed. Under such conditions no time should be lost through temporizing measures in securing free opening and thorough drainage.

It is unnecessary to describe in detail the distinctly surgical procedure of pleurotomy. It may be permissible, however, to call attention to one or two features that have repeatedly impressed me as of great importance. First, the opening should not be too low, on account of being later closed by the rising diaphragm as the cavity begins to become obliterated. The pus is not emptied from the thorax altogether through the force of gravity, but is pumped out to a large extent by the action of the lung in inspiration and expiration. Secondly, the opening should be maintained sufficiently patulous to permit free drainage. This does not refer strictly to the opening in the chest wall but to the tubes as well. I have frequently seen the fenestrated tubes so often used completely obliterated by the growth of granulation tissue from the opposite sides of the wall when the tube has been kept in position for some time. Third, the tube should be removed daily and cleansed and shortened from time to time, in order to avoid the violent paroxysms of coughing produced by irritation of the opposing and approaching pleura. Fourth, daily after removal of the tube, the patient should not merely be turned over on the side, but should also be subjected to a short series of pulmonary gymnastics in various positions, first with head and shoulders of affected side almost touching the floor, with the hips elevated on the side of the bed. Subsequently the hips should be lowered carefully to the floor with the shoulders elevated. This permits the fullest possible drainage from sacculated pouches that are not emptied by the ordinary turning of the patient. I have seen this demonstrated on my patients very many times after the cavity was supposed to be emptied. Gentle coughing is often sufficient at such a time, to either violently expel large masses of flocculent coaguli or at least cause them to present at the opening, and allow their subsequent removal by the forceps.

Pneumothorax.—The discussion of this somewhat frequent complication of consumption should include properly a separate consideration of the cases of acute onset, and the open, closed and valvular varieties. No mention will be here made of those cases with air and liquid combined in the pleural cavity. The diagnosis of acute pneumothorax, simple as it would appear, and

with such cardinal clinical features as sudden onset, following a severe attack of coughing, pain in the side, collapse, cyanosis, exceedingly marked dyspnea or orthopnea, mental agony and the familiar air-hunger, to say nothing of such classic physical signs as tympanitic resonance, absence of voice or breath sounds, impaired mobility of affected side and dislocation of organs, is nevertheless very frequently overlooked. It has been my privilege to see several such cases in consultation, the nature of which had not been recognized, although hysteria and various cardiac and circulatory disturbances had been suspected. In the majority of cases that have come under my observation the pulse has been exceedingly good, usually slow and of good quality, and the heart sounds, on superficial examination, normal, suggesting at once that the difficulty is not cardiac in character. A painstaking examination of the chest, which means its complete exploration, utilizing both auscultation and percussion, is always sufficient to establish a diagnosis. The real inability to do this usually, results from failure to make such an examination, which is sometimes difficult on account of the desperate condition of the patient, or from lack of a correct appreciation of the physical signs to be obtained. It seems to be often imagined that pneumothorax should invariably exhibit such typical text-book signs as bulging of rib spaces, complete immobility of side, resounding tympany, amphoric or cavernous respiration with possibly metallic tinkling, and should be ushered in by sudden severe pain following cough or violent exertion. As a matter of fact there have occurred among my patients numerous instances of acute pneumothorax without any assignable cause whatsoever, and many others of partial pneumothorax without so much as an initial symptom to suggest examination. Bulging of the rib spaces is by no means constant, nor any very marked immobility of the affected side, although both may be expected in severe cases. A perfectly defined tympany on percussion, so often looked for, is seldom observed. Amphoric or cavernous respiration can exist only in case of an open pneumothorax with air passing freely in and out with each respiration through an open communication with a bronchial tube. Metallic tinkling occurs only in case of liquid, as well as air, being present in the pleural cavity. In the absence of a suggestive history and the above physical signs, the diagnosis should be made by the diminished intensity of breath and voice sounds, complete absence of dullness and possibly displacement of heart. It may be noteworthy to mention in passing that I have seen one patient in whom the heart, instead of being pushed in the opposite direction, was found drawn toward the affected side by virtue of previously existing fibroid contracting change, and one patient in whom there was complete flatness over the affected side, suggesting pleural effusion, and in fact occasioning an error in diagnosis, as shown when effort was made to remove the liquid. This flatness was undoubtedly caused by the very great degree of hyperdistention. Two other physicians seeing the case with me concurred in the diagnosis of large pleural effusion.

The prognosis of these acute cases must be regarded, first, from the standpoint of the immediate present, and, secondly, in case of a not quickly fatal result, from the basis of its chronic existence. It has been frequently observed by others as well as myself that patients surviving the first few hours and possibly day or two may linger for several years, according to the extent of their original tuberculous infection and subsequent management. In cases of open pneumothorax the indications for treatment consist solely in excessive stimulation for a few hours. In urgent cases, while stimulation is, of course, plainly indicated, the only relief that has been in any way satisfying to the patient, family, or to myself has resulted from aspiration of the air. This is only applicable to cases of the valvular type permitting the ingress of air with each inspiration, but preventing its exit upon expiration and occasioning a positive hyperdistention in the pleural cavity.

Most remarkable subjective and objective relief following the aspiration is immediately noticed. This is almost instantaneous with the first withdrawal of air. The relief is but temporary, possibly of but a few hours duration, and can only be secured again by a repetition of the aspiration. Two patients recently seen by me were repeatedly aspirated, with marked improvement following each aspiration, but a recurring relapse. Finally a trocar and canula were inserted in each instance, the canula being left in place. This procedure was instrumental in securing some relief from the distressing symptoms, and was attended with a marked egress of air from the chest, but in neither instance prolonging the life of the patient over a few days. It is, however, the treatment par excellence for such cases, and provided there is not already too much impairment of respiratory capacity of the lung of the other side through extensive tuberculous infection, will occasionally enable the patient to adapt himself to his radically changed respiratory conditions. Pending this happy accomplishment, free inhalations of oxygen are of immediate value as well as in the acute cases of the open variety.

The existence of closed pneumothorax implies the previous occurrence of a ruptured pleura either of sudden onset or associated with a gradual development, which tear has subsequently healed and effectually closed the opening. It is frequently impossible to distinguish this from the valvular variety save that in the latter the symptoms are more urgent, the suffering more intense, and the danger more imminent. There is also usually less immobility of the side and less bulging. Of course in such a case there would be great diminution or absence of respiratory

sounds on auscultation. The prognostic influence of this type of pneumothorax upon pulmonary tuberculosis, if unassociated with liquid, is not necessarily unfavorable, in truth actual benefit may result from the compression. The danger lies in the opportunity afforded for infection and inflammatory action through the entrance of micro-organisms before healing of the rupture takes place, producing the formation of pus, and converting the condition into pneumopyothorax. Before this transformation takes place the treatment of the chronic pneumothorax consists in letting it alone.

Pneumopyothorax.—Save from a thorough and comprehensive chest examination this complication is very likely to be unrecognized. The condition is a chronic process, and often is lacking in rational symptoms to suggest its presence, although in case of a remaining open communication with a bronchus, close inquiry will elicit the periodical expectoration of large quantities of sputum, especially in the morning or upon change of position as leaning over, or turning upon the affected side in bed. While upon examination the presence of air may be detected, the existence of the liquid is not infrequently overlooked if occurring only in moderate amount. This is due partly to the fact that the liquid remains low in the pleural cavity, and is not molded around the lung as in the case of a pleural effusion. In pneumopyothorax, the upper level of the liquid conforms strictly to a horizontal plane, and being contained at the extreme base of the pleural cavity may readily escape notice if a searching examination be not made at this point. If attention is paid to this there should be no difficulty in recognizing the fluid on percussion, particularly in comparing the lower borders of percussion resonance on the two sides. This is made still easier by the usual development of emphysema on the well side, still further lowering its limit of resonance. A most striking corroborative physical sign is a very marked change in the level of flatness under the liquid with a corresponding change in the position of the patient. This, with the readily obtainable splashing sound and often the metallic tinkling, renders the diagnosis extremely easy when looked for.

The prognosis, aside from such considerations as the hyperdistention previously mentioned in cases of simple pneumothorax, is to a great degree dependent upon the degree of sepsis existing, if any. The treatment of pneumopyothorax, in the absence of marked intrathoracic distention occasioning cardiac or respiratory embarrassment, or of such a degree of sepsis as to produce fever, chills and sweating, consists in doing nothing as far as the complication is concerned, or, at the most, resorting to an occasional aspiration if indicated. If further measures are demanded by the existence of urgent symptoms, the syphon drainage, as used to meet somewhat similar indications in empyema, is the rational plan to be adopted. If unfortunately this expedient is found impracticable or insufficient and the condition becomes progressively more alarming, recourse must be had to an operation, which to this class of cases is most serious of all, the permanent opening of the pleural cavity.

From my observation it would seem that for these unfortunates the old saying of Dante should be changed to "Abandon hope all ye who are entered here." The atelectactic lung thoroughly collapsed is usually bound down by firm adhesions precluding all prospect of its ever expanding to any extent. And now begins the long period of interminable suppuration and drainage, the cheerful prospect of repeated rib resections, an Estlander or a Schede, non-healing wounds, and finally amyloid change to end the ever-deferred hope. And still perhaps a few years of this is preferable to an earlier death, and surely affords a justification for the operation if the exigency exists.

OBSERVATIONS ON TWENTY-EIGHT CASES OF PROSTATECTOMY.

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Among the vast amount of literature which has accumulated during the past ten years upon the operative treatment of prostatic hypertrophy, much has been said concerning the correct method of attacking the enlarged gland, the proper incision to expose it most freely and the manipulation by which it can be enucleated most easily. But surprising as it may seem, the subsequent details and events which occur in the course of the patient's convalescence have been referred to in a comparatively cursory manner, and it is the writer's opinion that a thorough understanding of postoperative conditions is of a greater importance than a knowledge of all the alphabetical incisions for the exposure of the gland, which have been offered by their many originators.

Suffice it to say that at present the most popular route to the prostate is through the perineum, the most popular incision is one which was first used two thousand years ago by Celsus, and the instrument upon which the urethra is opened was devised by Johannes de Romanes in 1555.

The operation of prostatectomy, either by suprapubic or perineal method, is not a difficult surgical feat. The danger lies in the fact that the condition of the patient for whom the operation is indicated is usually such as to make any surgical procedure a thing of gravity. The question of operative or non-operative interference depends on so many factors, social, physical and otherwise, that no general rule can be advanced. Each patient is a law unto himself. Operation can be offered with a clearer conscience, even though the risk be grave, to a poor derelict of humanity who has neither mentality nor means enough to launch himself upon a life of catheteri-

zation than to his more fortunate brother who is able to take advantage of all the measures which modern surgery has developed to make such a venture less perilous.

The expression "selection of cases" is a misleading one. It is too often a screen behind which many seek to hide a mortality rate. Can one select cases? Rather does one not have to meet the indication as it arises and select the operation or procedure which is most applicable to the case, the ability to do this wisely being the the goal toward which we should aim?

The choice between suprapubic and perineal operation, until recently, has been largely a personal equation with the individual surgeon, the operation advanced being that with which he had had the most experience, but now the pendulum of approval seems to swing toward perineal prostatectomy, this being the operation of election in the majority of cases on account of the advantages of the operation alone. These advantages, as summed up by Watson are, viz: (1) Low mortality; (2) completeness of result; (3) openness to visual dissection. In conversation with some of the advocates of the suprapubic operation, I have asked what were the main features of this method which have attracted them so forcibly. The answer has invariably been that if a calculus was found to be present it could be readily removed, and also that the middle lobe, if much enlarged, was so easy of access and of removal. These replies have not been convincing, because if one opens the urethra through a median perineal incision and after exploring the bladder with the finger, finds a stone present of too great size to be removed through the urethral incision without danger to the urethra, he still has recourse to the suprapubic method, the opening he has already made being used to drain the bladder after operation. In regard to the size of the median lobe making its removal through the perineal opening difficult or impossible, the writer is well aware that such cases may present themselves, but we believe this often to be largely a question of manual dexterity on the part of the operator. In the same manner one surgeon would do an abdominal hysterotomy when another would be able to remove a uterus of similar size through the vagina. In removal of the prostate one has the added advantage of being able to break up any one lobe into its component divisions before delivering it through the perineal incision.

Among the greatest number of patients suffering from the symptoms of prostatism, the discrepancy between the real amount of prostatic enlargement and the amount of discomfort the patient experiences is very marked. A comparatively small prostate often gives rise to disturbances out of all proportion to its size. These symptoms frequently develop before one is directed to the prostate as the seat of the trouble. By this is meant that the writer does not look upon prostatic hypertrophy as a senile condition, but as an interstitial change which has been insidious in its onset, first affecting the innervation of the gland and its enclosed urethra, giving rise through its close connection with the hypogastric plexus of the sympathetic, the lumbar plexus and spinal nerves to many reflex symptoms in the kidney and bladder, as well as those of a purely sexual character, and eventually, with the declining vigor of the patients' later years, becoming a mechanical obstruction to the outlet of an already overworked bladder. Five patients are at present under our observation, whose ages range from twenty-three to forty years, in all of whom the prostate is enlarged to twice the normal size or greater. They now suffer from symptoms due to faulty enervation of the organ only, but as they advance in years, and as the muscle of the bladder begins to partake of the general physical degeneration of old age, the added symptoms of obstruction will assert themselves.

That the time will come when such patients as these will be offered radical operation for relief before the symptom of obstruction has set in the writer firmly believes.

Since 1900 I have performed twenty-eight prostatectomies. Seven of these were removed by suprabubic incisions, with perineal drainage, and twenty-one by perineal incision only.

Of the patients operated upon by suprapubic method three died as result of operation, one from shock due to hemorrhage; two from uremia, one going into coma shortly after operation and the other living eighteen days.

One lived a year and a half after operation and died of pneumonia, the suprapubic wound in this case never being allowed to close. The patient experienced such relief from the suprapubic drainage that he refused to have the tube permanently removed. The only time he had any spontaneous urination was when the tube became plugged. The results in the other cases were brilliant, the patients being able to empty their bladders and control the act of micturition.

Of the twenty-one cases of perineal prostatectomy there have been two deaths. The first was a patient sixty-nine years of age, who succumbed to uremia three days after operation, the other, a patient of seventy-seven years, who lived but twenty four hours and died of suppression of the urine.

Both of the cases had advanced kidney lesions and severe cystitis. Operation was undertaken simply because their urinary difficulties were such as to make life unbearable.

The majority of the perineal operations have been performed upon almshouse inmates, who, almost without exception, have had, in addition to their prostatic hypertrophy, some pathological condition of their kidneys, lungs, or circulatory system, and it is extremely gratifying to see this class of patients come through operation with such a minimum of shock.

The incision which we prefer is the median

vertical, as the length of time for the healing of the wound after operation seems to be shorter when this incision is used. Horwitz claims that 95 per cent. of cases can be reached in this way. There is the objection to it that the chance of injuring the rectum is greater than with one of the more extensive incisions. The foregoing statement is based simply upon our own experience. Numerous observers state the reverse, including the possibility of rectal tearing as one of the objections to the horizontal incision or its modifications. They also place the moment of greatest danger to the rectum at the time of removal of the prostatic lobes. In the two cases in which this accident occurred to us, the injury took place during the separation of the rectum from the prostate.

In both instances the tear was immediately repaired and after operation a tube wrapped with iodoform gauze inserted into the rectum. In one case the accident did not materially affect the subsequent course of the patient's convalescence. The rectal tube was removed at the end of the fourth day, the perineal tube at the end of a week and the rectal tear caused no further complications, the patient making an uninterrupted recovery. In the other case, however, a serious complication was left. The patient was sixty-four years of age, and in addition to his prostatism, had suffered for years from chronic constipation. At time of operation he was obliged to urinate every hour day and night. A soft catheter, at 9¾ inches drew eight ounces of residual urine. By rectum both lateral lobes were found enlarged to about three times the normal size and the rectum much dilated. The prostate was exposed by median incision and found to be hard and fibrous. While separating the rectum from the capsule of the prostate, the thin rectal wall was torn through.

The rent was repaired and a rectal tube inserted. The patient's convalescence was tedious. The perineal wound was over long in closing, the sutures sloughed in the rectal tear, and four months after operation the patient still had a permanent recto-urethral fistula. He has never passed urine through the penis. He has control over his bladder, but when he urinates the urine is expelled through the anus.

The diurnal frequency is normal. During the night he urinates once. Attempt has been made to heal this fistula by draining the bladder by means of an indwelling catheter. Unfortunately this attempt had to be discontinued, as the urethra would not tolerate the presence of a catheter. A secondary operation has been offered to the patient for the cure of this unusual condition, but has been deferred, the patient experiencing so great an amount of comfort since operation. Peculiar as it may seem the bladder has not become infected. The fistulous opening is in the membranous urethra.

Many cases have been reported in which the entire prostatic urethra has been removed with apparently no evil results. We have had one such experience, when in our enthusiasm to remove the whole of the gland the prostatic urethra was included.

While we deprecate such a procedure, this patient made an uneventful recovery, and has been seen a year after operation with a normal frequency of urination and an ability to empty the bladder completely, with no resulting contractures.

As to the possibility of removing the prostate gland, leaving the ejaculatory ducts patent, we feel that if such a thing happens it is more the result of good luck than good management. The anatomical relations of these ducts are too greatly disturbed by hypertrophical changes in the gland to make such a dissection probable. Sterility will be caused by occlusion of the ducts, but we are not prepared to believe that impotence will necessarily follow. The phenomenon of of erection is a complex process, depending upon proper innervation of the whole genital apparatus, and especially upon those nerves which affect the circulatory changes within the corpora cavernosa. If we were able to remove the prostate without damaging any of its delicate nerve supply, we might be reasonably sure of potency being present in the patient after such an operation had been performed, even though the ejaculatory ducts had been severed.

Unfortunately an elaborate dissection of this character seems to be only barely possible upon the cadaver.

Two patients under our observation have been able to cohabit satisfactorily since operation, in neither of whom was any attempt made to save the ducts from injury. On the contrary, the lateral lobes were removed in their entirety without trying to leave any "ejaculatory bridge." Most patients who have reached the stage of their disease where operation is undertaken for the relief of obstruction have already experienced such loss of sexual vigor as to make the question of postoperative virility one of but small moment to them.

The question, however, may arise especially with patients whose obstructive symptoms develop early, between fifty and sixty years of age, and may influence them to accept palliative treatment rather than operation, for at present we are in no position to state affirmatively whether or not the ability to perform the sexual act will remain after operation. This statement holds good for suprapubic as for perineal prostatectomy. In connection with injury to the ejaculatory ducts, we desire to call attention to the frequency of postoperative epididymitis. It has occurred in seven of our cases. Two cases had both testicles involved, three cases the left testicle only, and two cases the right. In one case only did suppuration take place. Epididymitis has developed as early as the seventh day and as late as the fourteenth, usually on the ninth or tenth. In four of the cases the inflammation has been of

an extremely acute character, the patients running a high temperature, with intense prostration. One patient ran a temperature between 103° and 105° F. for three days. Delirium was present, and the heart's action was so feeble and irregular that it seemed a question whether he would survive. At the end of a week the temperature dropped to normal and the patient recovered. This patient had both testicles involved, and now, four months after operation, has had firm erections. He has not as yet tried to perform coitus.

The epididymitis in these four cases cleared up from the fifth to the seventh day, and the temperature fell by crisis.

The case of suppurative epididymitis ran a subacute course, the patient being up and around the ward, the temperature never rising over 100° F. He did not call attention to the testicle until after suppuration had taken place and the abscess was almost ready to rupture. Questioning brought out the fact that the pain and swelling, which were slight, had developed about the seventh day after operation. It was three weeks after operation when the abscess was opened. Two weeks later the sinus was healed and the subsequent course was uneventful.

Postoperative epididymitis takes place at the time when granulation in the wound is well-established. These granulations, probably causing occlusion of the ducts, interfere with their drainage and dam up any existing infectious material. This may then travel back through the vasa, setting up inflammation in the testicles.

We offer as a suggestion for the prevention of this complication, ligation of the vasa deferentia prior to performing prostatectomy. It is but the work of a moment and would not materially prolong the time of operation. When severe cystitis exists it may prove especially efficacious, as these are the cases in which epididymitis is most prone to occur.

Proust makes a point of isolating and ligating the ejaculatory ducts before the removal of the prostate. It no doubt acts the same as ligation of the vasa, but requires more time to do, as well as an elaborate dissection. We do not recommend that ligation of the vasa deferentia should be a routine procedure, but it may be found to be advantageous where the debility of the patient is so great that the possibility of testicular inflammation would gravely affect the prognosis.

One of our cases, of more than passing interest, presented the following history: He was sixty-seven years of age. He had been a sufferer from marked rheumatoid arthritis for years and was a "constant tippler." His urinary symptoms dated back seven years. Six years ago he had been operated upon for prostatic enlargement by the combined suprapubic and perineal method. The operation had given him practically no relief, and when he came under our observation he was dribbling urine continuously. Catheterization was only possible by use of a silver instrument, the beak of which upon entering the bladder was deflected sharply to the left. He had six ounces of residual urine.

Rectal examination revealed a large mass in the situation of the right lobe of the prostate. This mass was firmly adherent to scar tissue in the perineum. This patient begged to have something done, as his condition had become unbearable.

Perineal operation was decided upon, even though the rheumatoid arthritis had produced such an anchylosis in his hip-joints that it made it impossible to more than approximate the lithotomy position. The urethra, which was pushed way to the left, was opened by cutting down upon a silver catheter. It was then found that the median and left lobes had been removed, their situations being occupied by scar tissue. The remaining lobe, which was in every way adherent to scar tissue, was enucleated with difficulty. Even though these dense adhesions made the operation tedious, the patient recovered from the immediate effects of it without incident. The perineal tube was removed on the third day. The day following (four days after operation) a sharp hemorrhage took place from the perineal wound, and about eight ounces of blood were lost before it could be checked. Four days later a similar hemorrhage took place, but was readily controlled.

These postoperative hemorrhages have been the only ones which we have noticed in our whole series of cases. They were surprising, as the operation was remarkably free from bleeding on account of the extensive cicatricial tissue. No other complications have occurred in this patient's further convalescence. It is now a month since operation. He can control his urination, and though the perineal wound is not yet entirely healed, the major portion of the urine is passed through the penis, and he can empty the bladder completely. The hemorrhage in this case was doubtless due to the early removal of the tube and gauze drains. Nevertheless it is of prime importance, if quick healing of the wound is desired, to remove tubes and drains early. Our experience has shown that if the vertical perineal incision suffices to remove the gland, tube and gauze packing can be dispensed with much earlier than if one of the more extensive incisions is used. It is a recognized fact that elderly people do better if they are not confined to bed long after operation. Early removal of the tube is, therefore, to be desired. It has been our custom to remove the tube at the end of twenty-four or forty-eight hours, unless there exists such a grade of cystitis as to make a prolonged drainage necessary. Closure of the perineal wound will naturally take place at an earlier date if this is possible.

After the tube and drains have been removed from the wound, the bladder should be daily irrigated with a mild antiseptic solution. This is accomplished by introducing a catheter

through the penis as soon as the wound has closed sufficiently to make it possible. Some operators advise draining the bladder by means of an indwelling catheter after the removal of the perineal tube, leaving the catheter in until the wound is nearly healed. We have not found this procedure to be necessary in any of our cases. The earliest date in which the perineal wound has completely closed has been two weeks following operation. This occurred in one patient whose perineal tube was removed the day following operation, who was out of bed at the end of forty-eight hours and began passing water through the penis at the end of four days. It usually takes, however, from three to six weeks before the perineal sinus is completely healed. In none of our cases has there been any open sinus remaining after six weeks.

Three of our patients, prior to operation, suffered from a marked degree of pyelitis. With the removal of the obstruction to urination, the pyelitis was greatly improved. In one patient it disappeared entirely.

The ages of patients operated upon have been as follows: The youngest fifty-two, the oldest eighty-five years. Six patients were over eighty, eight between seventy and eighty years, and the remainder between fifty-two and seventy years. Age itself is apparently no contra-indication to operation.

The results of our series, taking three months after operation as the date of observation, have been very gratifying, but we have found that the majority of them have required a certain amount of treatment for some months following operation, directed toward curing up an old cystitis or increasing the muscular tone of the bladder. Although a patient may be able to empty the bladder completely after operation, in the majority of instances he never more than approximates a normal frequency of urination. This has been frequently due to the fact that a contracted bladder has existed before prostatectomy has been performed. Thus it will be necessary to keep many patients under observation and treatment for months in order to bring a diseased bladder back to its normal condition. This is where a knowledge of and skill in carrying out the details of bladder-treatment will greatly influence the final results. Passage of sounds has been a method of routine, but we have yet to see a case where there have been contractures serious enough materially to diminish the normal caliber of the membranous or prostatic urethra.

Many investigators have placed existing or non-existing renal insufficiency as the most important factor in determining for or against radical operation. Our experience has not borne this out. Seventy-five per cent. of those operated upon have more or less advanced renal lesions, and it has been frequently observed that kidneys which have been insufficient in their functions before operation, have been greatly improved by removing the urinary obstruction and giving them, as well as the bladder, free drainage. To our mind the effect of the anesthetic is of relatively greater danger to the kidneys than the effect of the operation, and the choice of the anesthetic of but small moment compared with the choice of the anesthetist.

THE OPIUM QUESTION IN THE PHILIPPINES.

BY JAMES A. LE ROY,
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WHEN the Philippine government proposed last year to establish a government monopoly of the sale of opium, both as the best means of preventing its being smuggled extensively and of so controlling its sale and use as to prevent, to the greatest possible extent, the spread of the habit among the natives of the islands, great opposition arose in the United States and in the islands themselves. The opposition that found expression in the United States, inducing the then Secretary of War to propose the postponement of the project under consideration until full examination could be made of the question, came from persons and associations, the latter mostly of a religious character, who opposed all connection of the government with the traffic in opium, on moral grounds. They preferred that absolute prohibition of the smoking of opium should be made the governmental policy. The opposition in the Philippines came to some extent from similar sources, but principally from the Chinese consumer and trafficers in opium, who, for the time being, joined hands with the missionary societies. They really preferred, or at least most of them did so, the maintainance of the *status quo,* getting their opium at the best price they could in consequence of the high tariff now placed upon it in the ports of the Philippines. Those of them who were engaged in the opium trade naturally wanted to see no monopoly established. It seemed quite evident, from their course of oppositon, that they would rather see an attempt at absolute prohibition of the traffic, as the missionary societies desired, than have the government take in its own hands the regulation of the sale and smoking. In case of absolute prohibition there could still be the contraband trade; but, if the government should set up an elaborate inspection system, it would be better able to check smuggling.

The proposed law was at last definitely pigeonholed, and a committee of three was appointed to make investigations throughout the Orient and report with recommendations. The members of this committee were Major E. C. Carter, Chief Health Commissioner for the Philippines, Bishop W. P. Brent (head of the new Protestant Episcopal organization in the islands), and Dr. José Albert, a prominent Filipino physician of Manila and also president of the Federal Party. During the past fifteen months, the committee as a whole, or individual members of it, have made special in-

vestigations in Japan, Formosa, China, Hongkong, Saigon, the Straits Settlements, Burma, Java and the Philippine Islands—meeting with opposition to their investigations only in Manila, on the part of the Chinese living there. Their report was submitted to the Philippine Commission several months since. It forms perhaps as comprehensive a survey of the opium traffic and the opium habit as has ever been made. Their findings are unanimous, and in general support the Philippine government in the proposition that the best method of regulating as well as of restricting the use of opium, in populations addicted to it, is by means of a government monopoly. They consider, however, that the conditions in the Philippines are, all in all, exceptionally favorable for wiping out the habit; and, while they propose a government monopoly as the best means of dealing with the traffic under the present conditions, they also propose that an early date be fixed for putting an end to the monopoly, after which time traffic in the drug and its use for any other than medicinal purposes shall be prohibited. In short, they advocate a system of "progressive prohibition," taking the form at the outset of a government monopoly.

After going at some length into the medical phases of the subject, they declare that only a superficial examination is sufficient to reveal the inadequacy of prohibition in places where the habit already obtains. In the first place, the irrepressible craving for the drug is so nearly impossible to resist that there may be said to be practically no cases of a spontaneous cure of the habit. Secondly, once begun, there is inevitably a gradual increase of the dosage. Though what may be called "opium intoxication" does not at first show itself, the person who resorts to the drug, very often on account of some ailment, finding that the symptoms of his disease disappear, and that generally the mental and reproductive functions are improved, yet inevitably, after a greater or less period of time, varying with the individual, these conditions change, first gradually, then rapidly, until at last the "end is reached in a physical, mental and moral degeneration."

The committee considered that there was no possibility of introducing the "local option" principle into the regulation of this traffic. As for the system of high license, or high tariff, they find that the use of opium has increased in the Philippines under the latter, and believe it would continue to do the same under a system of high license administered internally; under such a system also, a higher premium would be put on smuggling; and it is an unfortunate source of revenue, in any event. As for the system of "farming out" the sale of opium, now quite commonly in vogue in other Malay countries, the committee found it open to the same objections as that of high license, and added further: "The farmer endeavors to increase his profits by extending his business, and so the sale of opium is increased; furthermore, it is hardly moral to delegate to an individual, not a representative of the people, such authority in the way of supervising, detecting and policing as the farmer usually exercises." As for immediate prohibition, they say: "The investigation of the committee leads it to believe that immediate prohibition is practicable only as a preventive measure in communities where opium-smoking has never obtained. In those communities where opium is used, and prohibition has been tried, it has been found to be a source of blackmail."

In general, a system of government monopoly is best where opium is already used, as government agents can thereby to a great extent regulate and restrict its use: the agents of its sale ought never to have any interests in profits from it; smuggling can be kept down at least as effectively under this system as under any other; and, by keeping the proceeds from the sale of opium at the point where they only meet the expenses of the system of regulation, it may be demonstrated that the latter is aimed only at control, repression and eventual abolition of the habit.

Their reasons for believing that no system of prohibition, abruptly introduced, would be of avail in the Philippines, and yet that the government can speedily shape conditions to that end, enforcing prohibition perhaps more effectually than is done in Japan, are as follows:

"In the Philippine Islands the practice of smoking opium is an exotic one, imported by the Chinese since time immemorial. The number of Chinese inhabitants in the Philippine Islands is about 70,000, distributed in varying numbers throughout all the provinces of the archipelago, the greater part being found in the larger towns, such as Manila, where there are about 40,000. From 1843 to 1898 the farming system was in vogue in the Philippines, its purpose being to raise revenue and to check the opium vice among the Filipinos, prohibition being considered an impossible utopia. Although this system prohibited the sale of opium to Filipinos and forbade their entering public smoking-shops, they were contaminated by the vice in all the provinces, though only to a small degree. From the statistics which we have secured and which accompany this report, it is clearly seen that the provinces in which the vice is most widely spread are Negros Oriental, Negros Occidental, Capiz, Surigoa, Cagayan and Isabela, there being many *pueblos* in which the vice is unknown to the natives, owing to the lack of social contact with the Chinese. The swallowing of pills is exceptional among those who abandon themselves to the vice, and hypodermic injections are unknown. The average number of smokers in the *pueblos* of the different provinces varies from a fraction of one to fifty. Filipino women rarely use opium, and the drug is never administered to children. As an exception to this rule may be mentioned the town of Tayasan in Negros Oriental, where the vice has taken hold of entire families."

From this analysis of the conditions affecting the use of opium in the Philippines, it is easy to see that absolute and immediate prohibition would not prohibit an opinion confirmed by its failure to do so in certain districts of Java where it is in effect.

". . . As we have already observed, the proportion of Filipino smokers to the entire population of the islands is insignificant, save in three or four *pueblos*. The danger, therefore, lies in the tendency of the vice to grow and spread, until the number of victims, now inconsiderable, may at some future time reach a point where it shall constitute an alarming evil. As long as the present Chinese exclusion act continues in force, there can be no influx of opium-smokers from without; and with a steady effort of the government to prevent an increase of the number of proselytes to the vice within, the habit will be confined to those who are already its slaves."

The committee recommends, therefore:

"That opium and the traffic therein be made a strict government monopoly immediately.

"That three years after that shall have been done, no opium shall be imported, brought or introduced into these islands, except by the government and for medical purposes only. The time necessary to enable one accustomed to the use of the drug to discontinue the habit has been estimated at from six months to twenty years. It has seemed necessary to the committee to state a definite period after which the use of opium shall be prohibited, because the force of any law or ordinance depends largely upon the exactness of the time at which it may be enforced. If a longer period than this were allowed, the time at which the *habitué* would begin to disaccustom himself to the use of the drug would be postponed indefinitely. Three years would seem to be a period of sufficient length. At the expiration of this time, the government will be in a position to determine what is wisest and best to be done."

Further recommendations designed to aid in this policy of "progressive prohibition," are: That the use of opium be prohibited to all inhabitants of the Philippines who are not males above twenty-one years of age; that those of the required status shall be allowed its use, obtaining the drug in prepared form from the agents established by the government, only on the presentation of a license, these licenses to be issued to such inhabitants (without distinction of race) only upon their written application, accompanied by the certificates of two trustworthy persons, one if practicable to be a physician, to the effect that the licensee is a "habitual user of opium and would be injured by being compelled to discontinue its use suddenly;" that habitual users of opium shall be disqualified to exercise the suffrage or to hold office; that for natives of the islands, violations of the laws regulating the use of opium shall be punished twice by fine or imprisonment and the third time by disqualification for the franchise or for office, and that in the case of a third violation by a Chinese or other non-native inhabitants, the penalty shall be deportation; that no public smoking-places be allowed; that the cultivation of the poppy for the purpose of producing opium shall be declared illegal in the islands; that the government hospitals shall give free treatment to indigent opium-smokers entering for the purpose of ridding themselves of the habit; and that a primer of hygiene be prepared for use in the public schools, in which the evil and debasing results of the opium habit shall be taught, this primer also being published in Chinese for distribution among the inhabitants of that race or reproduction in their newspapers. Other detailed recommendations are also made, such as are suggested by the experience obtained in other opium-smoking countries as best calculated to make the regulation on the part of the government the more effective.

Some such plan as this will now very soon be adopted in the Philippines. Considering the difficulties of instituting and maintaining the somewhat elaborate machinery for a government monopoly of the traffic, which should last but three years, Secretary of War Taft inclines to favoring a high-license system during the brief period within which the traffic shall be legal in the islands. In any event, whatever plan is adopted will look toward prohibition at an early date, probably within three years.

SOME SO-CALLED RHEUMATISMS.[1]

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IN dispensary service and for office practice probably nothing comes more frequently for treatment to the physician than obscure pains of many kinds, usually worse on rainy days, and as a result of this, commonly called by the patients at least, and very frequently by their physicians also, rheumatic.

Chronic rheumatism is supposed to be one of the most frequent of diseases. The usually accepted explanation of it for about the last half century has been that the blood was too acid, and that as a consequence nerves were irritable and the circulation not so nutritious as it should be. Uric acid has been a slogan in medicine for a long time. We now have even a uric acid monthly. As for remedies that will cure the uric acid diathesis, their name is legion, and some of us suspect that they mean no more good for mankind than that other group of scripture fame whose name was said to be legion.

Fortunately a very decided reaction has taken place in the last five years, a reaction that had been foreshadowed ten years before by the work of physiological chemists, and at the present time

[1] Read at the Annual Meeting of the New York State Medical Association, October 18, 1904.

there are very few serious scientific workers in medicine who consider that uric acid is of any etiological importance in the production of pathological conditions in the human economy. The cases that used to be called chronic rheumatism, however, still continue to come and must be treated. The question is, what are they? We have tried theory for half a century and it has failed us. It might seem well to go back and study the patients once more and see whether we would not find that there are grouped under this all embracing name "rheumatic" a number of conditions for which we can do much by recognizing their real cause in the habits and constitution of the individual. The present paper is meant only as a contribution to the clinical side of this important subject, diagnosis being considered rather than treatment, though once causation becomes clear, treatment is usually not a difficult matter and the indications stand out of themselves.

So-called rheumatic conditions in the upper arm and shoulder are not infrequent. I remember once having three of them present themselves at my dispensary service at the Polyclinic, all of them presumably suffering from rheumatism, all having been treated for this condition. One of them proved to be a motorman suffering from occupation pains that often come to those who use their arms overmuch, the pains seen so frequently, for instance, in baseball pitchers. These pains are always worse on rainy days. Why can one man pitch nearly every day all season and not suffer with his arm, while another man cannot? We can no more tell the reason for this difference than we can tell why one man is right-handed and another left-handed. One individual has a store of nervous energy that serves him very well. Another has a store of nervous energy that serves him well enough for his left hand but not for his right hand. The mystery would seem to be the original endowment of nerve force according to the individual's constitution. Your motorman who suffers severely from putting on the brake of the heavy car, will probably never be able to continue his occupation with comfort to himself unless his sore arm is due to some temporary condition, easily recognizable.

A second of my patients with rheumatism complained of his shoulder. He had been first easily fatigued, then it was painful when he moved much, most so on rainy days, and finally he had practically lost power in it entirely. His occupation was that of finisher in a molding works. He lifted a heavy hammer many hundreds of times a day with his right arm, striking quick short blows and using mainly his deltoid muscle in the lifting process. It was just his deltoid that was affected and the nerve supply had evidently given out. The third man complained not of his right hand, but of his left and of his forearm, not his shoulder, having lost power especially on the ulnar side of his hand. He was a stonecutter, who held a chisel firmly in his left hand, grasping it mainly with the under or ulnar side of his hand, and consequently overusing his ulnar nerve.

There was just one feature in the history of all three that was the same. They did not drink alcohol to excess often, but they did take some whisky straight every day. The easiest explanation seemed to be that there was a neuritis set up in the nerves, which their occupations caused them to use so much, and that as a consequence, the low grade neuritis finally developed to such a condition as to make further use of the muscle supplied by the affected nerves practically impossible. Just why alcohol will select certain nerves and not others upon which to exercise its deteriorating influence and why lead usually affects an entirely different set we do not know. In the ordinary man of sedentary occupation who walks occasionally, as his only exercise, his most used nerve in his anterior peroneal. Those of us who are not used to walking much, know how soon this nerve complains of fatigue when we make some forced ambulatory effort. It is this nerve then that with most people is affected by alcohol. But any nerve that is overused will apparently be affected the same way, and as many outdoor workers take some whisky straight pretty regularly, it is not surprising to find that some of them have an idiosyncrasy and develop a low grade alcoholic neuritis.

Alcohol, however, is not the only substance that acts thus insidiously. I was once asked to treat a painter who was suffering from intense tired feelings in his right forearm. They were always worse on rainy days, and he had been treated for rheumatism without avail. He had no signs at all of wrist-drop, there were no suspicious signs on his gums and he had never suffered from constipation or anything like lead colic. It seemed far-fetched then to say that his muscles were fatigued mainly because of the irritating presence of lead in the nerves supplying his right forearm. He slipped on the ice, however, and sprained his wrist, and the next day turned up with a typical lead wrist-drop. This fact of having lead poison develop shortly after an accident is not unusual, just as a sprained ankle may sometimes be the signal for an outbreak of alcoholic neuritis in the lower leg which has been preparing for some time, the accident being partially at least accounted for in many cases by the awkwardness of muscles with insufficient nerve supply.

There is scarcely an occupation, however, in which movements are frequently repeated, or in which a particular position is maintained for a long time in which neuritis may not be seen. Lumbago is undoubtedly more frequent among tailors, especially those who sit on a table in the old fashioned way and bend their backs forcibly, than among any other class of men. The nervous effort required to maintain this bending position, most of the bend being in the lumbar

region, is reflected back upon the lumbar plexus and vague pains in this region are quite common. Iron workers, puddlers, molders and the like, who stoop to lift and carry heavy objects also suffer from this affection very commonly. This is especially true if they are laboring under any toxic condition, lead, alcohol, diabetes, syphilis or the like, which exerts its influence upon the nutrition of the nerves.

Sciatica on the other hand is very common in those who actively bend the body at the hip, shovelers, for instance, who bend the right knee in going down to lift heavy shovelsful of material, are among workmen the most frequent sufferers from this disease. I have seen, however, a number of motormen accustomed to stand on their right foot and swing round the body on the right leg in putting on the brakes of heavy cars, who also suffered from it.

Those who have to stand on their feet much usually suffer in the lowest joint of the leg, at the ankle. There are very few waiters who do not suffer to some degree, at least, from flat foot. This affection is always worse on rainy days. I once pointed out as one of the reasons for this that on rainy days, people usually wear their old shoes, and old shoes do not support the foot as well as new ones. It is curious, however, how long flat foot may exist to a marked degree without giving any symptoms. Usually the symptoms develop rather suddenly. There is a story of the patient having done something quite unusual just before the trouble was first noticed. A man moves and has to hang up the pictures in his house, thus occupying an awkward position on the step-ladder, on his tip-toes, or otherwise, for several hours. A clerk, who has been handling goods on the counter, is asked to set them high up on shelves. The result is the giving way of the arch of the foot and a soreness that is usually called rheumatism, always worse on rainy days.

Just why sensitive nerves slightly irritated, or in a subinflammatory condition, should produce more discomfort on rainy days is not easy to say. Unfortunately it is usually considered that dampness and rheumatism are intimately associated, and consequently the word rheumatic is inserted in the description of the patient's condition. An affected tooth, however, often gives pain on a rainy day, a broken bone usually becomes sensitive just before a rain storm. The dislocated shoulder becomes an invaluable barometer, but one that most patients would dispense with very gladly. We do not call these conditions rheumatic, though they are associated quite as closely with dampness apparently, as the vague muscular pains. The fact of the matter seems to be that any drop in the barometer by making the pressure on the surface of the body less than it was before permits a dilatation of the capillaries at the periphery with a constant tendency to congestion, that makes nerves more sensitive than they were before, especially if they have been affected by some low grade pathological condition. Even unaffected nerves, however, express their dislike of damp weather by making muscles much more easily fatigued than they were before; hence the depressed tired feeling of a day with low barometric pressure. The circulation is not so active, nutrition is not up to its proper standard, and fatigue comes sooner than it does on the cold, bracing day, which, by causing the capillaries to contract, raises blood pressure and causes rapid interchange in the metabolism of the muscles.

It must not be thought, however, that only workers, that is, manual laborers, are to be considered in this question of occupation pain. I have seen three cases now in writers, whose forearm bothered them some, whose shoulder bothered them much more, the conditions always being worse on rainy days so that they were considered to be rheumatic, though the pathological condition was really writer's cramp. Why some met get writer's cramp and others do not is another phase of the history that we have been discussing.

One thing, however, has been much impressed upon me, and that is that those who are normally left-handed and are taught to write with their right hand, suffer from writer's cramp much more readily than normally right-handed individuals. It would seem as though nature were taking her revenge for an interference with her original plan, for the man is right-brained and should not be compelled to use his right hand for a work requiring so much coordination as does writing.

A certain number of cases of sciatica will be found in those who sit in awkward positions or in unsuitable chairs while doing much writing or clerical work. I have seen an old woman, who was considered to be paralyzed, because she had lost all power in her feet and a certain amount of her sensation also below the knee, who yet got entirely well at once when she was taken out of a cushioned chair, which used to sink down in such a way as to allow the edge of the frame to press upon her sciatic nerves just at the place where these come closest to the surface. On the other hand I have had to treat a literary woman who sat much at her desk for pains that were considered to be rheumatic in the leg, but they did not get better until she had adopted another chair and another position for her writing, her former position bringing pressure to bear directly upon her right sciatic nerve. In a word, I think that much of the so-called uric acid diathesis with the consequent rheumatic pains is nothing more than neuritides of various kinds due to overexertion, pressure upon nerve trunks preventing proper nutrition, the presence of irritant substances in the blood, such as alcohol, lead and the blood disturbances of diabetes and to some inherited weakness of special sets of nerves.

CASE OF PRIMARY MALIGNANT TUMOR OF THE LUNG.

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ALTHOUGH many cases of neoplasms of the lung and pleura have been reported, still, since there are so many points in diagnosis and pathology in dispute, we are encouraged to believe that every new case may give some aid in the study of this interesting condition.

P. C., cigarmaker, fifty-five years old, presented himself at Prof. Adler's clinic and gave the following history: There was no trace of cancer or tuberculosis in the family and he denied ever having syphilis or any venereal disease. Five years ago, he became troubled with cough and pain, which was not accompanied by any expectoration. At first these symptoms seemed to disappear with appropriate treatment, but would soon return. In fact, his cough and pain never entirely left him. Two years ago his cough became more harassing and was accompanied with gradually increasing mucous expectoration, whereas until then there was only occasional shortness of breath on violent physical exertion; the dyspnea now became more intense and permanent, so that on the slightest movement he would have to stop in order "to catch his breath." Pain became more intense, sleep became disturbed, cough became more and more distressing, and during the last year expectoration was very frequently bloody. At times he expectorate pure blood; quantities varying from a few drops to a tablespoonful. On several occasions a genuine hemoptysis occurred with the expectoration of fully eight ounces or more of apparently pure blood. During all this time he maintained that his weight kept constant, and that he did not suffer from night-sweats or fever. His appetite remained good; there was no change of voice. Bowels were regular and micturition normal. Physical examination showed the following: Fairly well-nourished man, with average subcutaneous adipose tissue—five feet five inches in height and weighing about 130 pounds. Conjunctivæ rather pale, slight edema underneath eyes, complexion of face somewhat livid. No enlarged glands could be felt in the cervical, axillary, epitrochlear or inguinal regions. Both jugulars enormously dilated and tortuous. The superficial veins of the chest and upper portion of the abdomen, especially on right half of the trunk, were also greatly dilated and tortuous, standing out well above the surface of the skin and forming a huge "caput medusæ." A very slight superficial edema of the right chest was evident. The space above and below the clavicle was rather full. Respiratory motion was markedly reduced in right thorax. Careful measurements of the thoracic arch showed no difference in diameter between right and left side. Apex beat of the heart was not visible, but faintly palpable in normal position. Absolute flatness was found over nearly the whole right chest, extending from the axillary line forward and from the clavicle downward beyond the sternum and emerging over the superficial area of cardiac dulness. Over this area pectoral fremitus was completely absent. The voice was diminished. The breathing was faint, distant, and sub-bronchial in character. There were no râles. On the portion of the lung adjacent to the area of dulness expiration was harsh and prolonged. The right lung posteriorily and all of the left lung showed no essential changes. An aspirating needle introduced into the area of dulness, seemed to enter solid material. The heart sounds were rather feeble, but there were no murmurs. There was no accentuation of second pulmonary sound. Heart dulness did not extend beyond left mamillary line. Radical pulse was fairly soft and regular and of the same volume on both sides. Liver and spleen were not enlarged and no abnormalities could be detected in the abdomen. Reflexes were normal.

The examination of the stomach contents after a test meal showed free hydrochloric acid and the absence of lactic acid. The tube went down without difficulty.

Blood examination made a few days later showed, Hb., 62 per cent.; red cells, 3,989,000; white cells, 14,300.

Differential count gave polynuclears, 54 per cent.; lymphocytes, 34 per cent.; large mononuclears, 8½ per cent.; eosinophiles, 3½ per cent. Thus showing a preponderance of lymphocytes and a slight leucocytosis. Red cells stain evenly, but are not equal in size. Microcytes and pear-shaped cells are abundant, but there are no nucleated red cells, no poikilocytosis, and no stippling. The repeated examinations of the urine showed no noteworthy change. Temperature is normal, pulse about 80 per cent. and respiration at rest 28 per cent. Numerous and most searching examinations of the sputum were made. At no time could tubercle bacilli, elastic fibers or particles of tumor be found. Careful search for actinomyces, streptrothrix and other abnormalities proved negative.

From the facts just stated, it seemed evident, that we had to deal with some form of neoplasm involving the right chest and the interior mediastinum, and compressing the large veins, most probably the superior cava. The fact that cough and pain in the right chest had been the first symptoms and had appeared five years ago, and the further fact that, according to the patient's repeated statements and assurances, the dilated veins and edema were of comparatively recent date, necessarily led to the assumption of a primary neoplasm of the right lung, that gradually involved in its growth the anterior mediastinum with its contents.

[1] Case presented at Clinical Society of New York Polyclinic, December, 1904, as a probable primary endothelioma of the lung.

In view of the long duration of the affliction and the comparative state of good nutrition of the patient, the slight secondary anemia, the tardy involvement of lymph-nodes, we were inclined rather to exclude the more malignant form of sarcoma, and to consider a slow growing carcinoma or endothelioma of the lung as the most probable forms of neoplasm in this case.

The patient and his friends were advised of the unfavorable prognosis, and he was especially warned of a sudden hemorrhage at any time, endangering his life.

Patient remained under observation for two months, during which time the disease progressed with great rapidity.

Enlarged and hard lymph-nodes appeared first in the right axilla and then in the left, while the cervical and supraclavicular regions remained free. An area of slight dulness with harsh and prolonged respiration and diminished vocal fremitus appeared about the middle of right lung posteriorly, together with considerable pleuritic friction. Very soon thereafter, with increasing dyspnea and distressing pain and cough, fluid appeared in the right pleural cavity, which rapidly filled.

The chest was aspirated and twenty ounces of clear serous fluid removed. Almost immediately, the pleural sac began to fill up again, but the patient before he was ready for another aspiration, while in a carriage on his way to a meeting of a medical society, where he was to be demonstrated by Dr. Isaac Adler, was seized with a profuse hemorrhage, which ended his life.

Autopsy January 23, 1904, by Dr. Otto Shultze.—Macroscopical: A tumor mass was found involving lower end of trachea on right side, four rings above the bifurcation and on the left side just at the bifurcation. This tumor continues and involves right bronchus and posterior portion of left bronchus. Anteriorily the mass extends over the bronchus and reaches as high as two cm. above the origin of the innominate artery. Glands over the anterior portion on the right side of the dome of the pericardial sac are involved in the growth, and the upper lobe of the right lung is adherent to the sac. Growth extends directly through the anterior portion of the upper lobe of the right lung, following the larger branches of the bronchi to the costal pleura. Rest of the lobe toward apex is atelectatic and bronchi filled with pus. Middle lobe of right lung is the seat of hepatization, very light in color and slightly granular. Wherever the growth pierces the wall of the bronchus to the mucous membrane, the membrane presents an ulcerated and eroded appearance. Lower lobe partially atelectatic. Metastatic pleural surface of the diaphragm. Diaphragm contains a number of villi markedly injected. Left lung contains a few grayish white plaques (metastasis) ½ cm. in diameter on posterior surface of lower lobe, on the posterior margin of the base and also on the surface of the base. Embraced in the mass and constricted by it is the superior vena cava, showing a distinctly puckered arrangement as viewed from right auricle. Right pulmonary artery shows longitudinal folds with a funnel-shaped narrowing down to the tumor where vessel is almost entirely compressed. Heart shows some brown atrophy, otherwise normal; peritoneum is perfectly free. Spleen is small and congested. Liver is normal in size—surface smooth—color pale. Stomach and intestines anemic, but otherwise normal. Patient had but one kidney, horseshoe in shape, and ureters passing anteriorly.

The microscopical examination showed a typcal flat-celled carcinoma in the primary growth, as well as in the metastatic deposits. Details of which will be published by Dr. Isaac Adler later.

160 West One Hundred and Twenty-first Street.

CALCULI IN BLANDIN'S AND SUBMAXILLARY GLANDS. REPORTS OF CASES.

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CALCULI are found in all of the salivary glands, although not very frequently, yet often enough to cause one to be on the lookout for their presence.

In 1896, Futterer[1] collected the reports of 160 and Roberg[2] in January, 1904, added 47; since then I have found in the literature mention of three ([3] to [5]), making the total, including my three, of 213 cases up to date.

They occur most frequently in the submaxillary gland or its duct known as Wharton's. This may be due to the secretion being more viscid from a larger proportion of mucin or perhaps to its situation. The openings of the ducts on each side of the frenum in the papillæ under the tip of the tongue are so situated that foreign bodies, as pieces of toothpicks, bristles from toothbrushes, micro-organisms can easily enter, and become nuclei for the concretions. The openings of the ducts may become obliterated or obstructed and lead to the formation of inspissated mucus in which the deposits of calcareous particles may take place. The calculi consist chiefly of calcium carbonate and phosphate, and usually assume the shape of the duct in which they lie. They vary in size from the smallest granule to those attaining a large size—as the one Puzey[6] reports—1½ inches in length and ½ inch in thickness, weighing 115 grains.

The diagnosis of the calculus in the Wharton's duct is easily made by passing one finger along the floor of the mouth, and another of the opposite hand below the jaw, so as to compress the duct between the fingers gradually throughout its entire length. Any hard concretion is bound to be felt. The calculus stops the flow of saliva and causes a distention of the duct and gland behind it, and a swelling under the angle

of the jaw in the submaxillary, or by pressure, in the sublingual region. A fine probe can also be passed through the duct and the gritty feeling will reveal the nature of the obstruction.

These can easily be removed under local anesthesia. For operations around the ducts, I employ a fine-pointed canula with syringe and inject about one-half dram of a solution of adrenalin, 1: 1000 and follow this by 5 to 20 drops of a 5 per cent. solution of cocaine directly into the canal. This makes the work absolutely bloodless and painless. Of course, general anesthesia can be employed when patients insist upon it, as was done in these cases which I herewith report.

Case I. Calculus in Blandin's Duct associated with one in Wharton's Duct.—This case is extremely interesting from its rarity. Blandin[7] in 1823 and Nuhn[8] in 1845 described underneath the tip of the tongue, on each side of the middle line, a gland the size and shape of an almond, having vessels and nerves but quite distinct from the sublingual.

If the tip of the tongue be curled up and the surface dried, pits marking the opening of the ducts, two or more on each side, may be seen.

In a general search through the literature, I find two cases reported of calculi in this situation. Gurlt[9] refers to Zacutus Lusitanus who mentions that a smooth hard stone the size of a hazel nut had been removed from the tip of the tongue.

Godlee[10] reports a case of a woman, twenty-four years old, with a tumor on the left side of the under-surface of the tongue near the tip. He passed in a trocar, and felt a hard substance which he removed. He then cut out the growth with a scissors. The wound healed readily and soundly. The examination of the mass revealed a calculus with an adeno-sarcoma surrounding it.

The patient of mine was Mr. M. S., aged thirty-four years, a German, referred by Dr. A. Sturm. He complained of a swelling extending from the tip of the tongue along the right side to beneath the jaw. It had been noticed three years prior as a small, soft swelling, which had gradually grown much larger and harder. The swollen part under the tip of the tongue caused excessive pain while eating. A diagnosis of calculi was made and an operation advised. As he objected to local anesthesia, a general anesthetic was given. Beneath the tip of the tongue, a small calculus was removed by a slight incision into a part of Blandin's gland and a larger one was found on opening Wharton's duct. Quite a large quantity of pus escaped. The calculus from Wharton's duct is pear-shaped, weighs four grains and is of a yellowish color, while the one from Blandin's is rod-shaped, weighs one-half grain and is of a reddish color. The parts healed nicely within a short time, a mild antiseptic wash being used.

Eight months later, the patient consulted me again, on account of a swelling on the same side, but this time limited to the side of the tongue. The cut into Blandin's gland had thoroughly healed. Upon probing Wharton's duct, no calcareous particles were found, but quite a quantity of pus and saliva escaped. Since then, he has been perfectly well. It might be interesting to add that when he consulted me the first time, he had been informed that the swelling was in all probability malignant, and as a consequence, he had been exposed to the X-rays for their curative value, but naturally, without result. This is the only case on record of the association of a calculus in Blandin's gland with one of the submaxillary.

Case II. Calculus in Wharton's Duct attaining a large size without symptoms.—The patient, Abraham L., aged forty-three years, called at my office complaining of a swelling on the left side of the tongue, and a small one under the jaw on the same side. Upon examining with a probe a calculus was discovered. A general anesthetic, ethyl chloride, as the patient absolutely insisted upon it, was administered by Dr. Milton Simon. Dr. B. M. Feldman, who referred the case, assisted during the operation. The calculus was removed from the anterior third of Wharton's duct and about two drams of thickish, yellowish pus accompanied it. The small swelling under the jaw was due to the pressure on the ducts of Rivinus of the sublingual gland. The calculus weighs six grains, having the general appearance of a large orange pit. The gentleman is one of the most prominent members of the criminal bar in New York City, and is constantly pleading in the courts; therefore, it was remarkable that the calculus should have attained such a size before it caused any annoying symptoms, as he had only noticed it about three weeks before he sought relief.

Case III. Small calculus with intermittent swelling of submaxillary gland.—Mr. I. S., aged thirty-seven years, of El Paso, Texas, complained of a swelling beneath the jaw, which would increase in size and then decrease again. The swelling was annoying and painful. Various applications, massage with camphorated oil, liniments, etc., had been employed unsuccessfully. He had been suffering from ethmoiditis, and nasal polypi, but these had been attended to.

Examination revealed a swelling below angle of the jaw, somewhat painful, but no fluctuation. Through the mouth at the beginning of Wharton's duct, a small hard substance was felt and a diagnosis of possible calculus was made. Under general anesthesia administered by Dr. M. Packard, the duct was opened and a calculus the size of a pea was found.

The reaction in this case was severe, the gland became swollen, and for a few days there was considerable difficulty in swallowing. This condition rapidly improved, the patient simply using a mild mouthwash. The duct was probed and found to be perfectly clear before the patient left for home a week after the operation. About one month later, I received a letter stating that the swelling of the gland had subsided in a few

days, but that he felt something hard in the duct. Three months subsequently, I removed a small calculus from the opening of Wharton's duct under cocaine anesthesia. The second calculus must have been in the gland, and being so small worked its way out to the end of the duct. The first calculus must have acted as a valve at the beginning of the duct, causing obstruction and distention from time to time. There was no pus in this case.

Both these calculi are exceedingly small and rough. Their roughness is due perhaps to the fact that they were not in the duct long enough to be worn smooth by the action of the saliva and the muscles constricting the tube. The cause of the severe reaction must certainly have been due to the ethmoiditis, as during the operation quantities of muco-pus poured out, making the administration of the anesthetic quite difficult.

In concluding the paper, I would suggest in every case of swelling of doubtful diagnosis beneath or around the angle of the jaw, a routine examination of the floor of the mouth be made. A calculus would then be easily discovered, and the patient saved the annoyance of any unnecessary treatment or the worry of supposed malignancy.

115 West One Hundred and Twenty-first Street.

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PROGNOSIS AND TREATMENT OF CHRONIC NEPHRITIS.[1]

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FROM our knowledge of the pathology of chronic nephritis we can see that the damage done to the kidney cannot be repaired, therefore, we must direct our treatment toward preventing or inhibiting advance of the pathologic process, and upon the results of this treatment the prognosis will largely depend.

So far as the existence of chronic nephritis alone is concerned, the patient is usually in no immediate danger, but it is the many pitfalls that line his path that modify the prognosis and determine the duration of the disease.

It is difficult to determine the actual duration in many cases, particularly in the interstitial form, because the disease is usually developed insidiously, and has existed for a greater or less period of time before manifesting symptoms, either primary or of its many complications.

"An absence of symptoms does not by any means exclude the existence of pathological changes, even in an advanced stage of disease" (Daland), and this is particularly true in this disease.

Much depends upon the causal factors in every case.

Dropsy occurring in the course of chronic nephritis is not necessarily of immediate bad omen, as malleolar dropsy may exist for years and the patient remain active, with but few other symptoms present.

When marked dropsy suddenly appears or previous dropsy becomes rapidly increased, it then becomes an active factor in the prognosis, as indicating either great structural change in the kidney, or heart failure, in either instance going on to a rapid end if treatment does not check its advance.

Chronic interstitial nephritis, barring complications, is a disease which may last for from five to thirty years, and offers a far better prognosis than the parenchymatous form, the latter often terminating within one year, five years being a wide limit of time in even the small white kidney to maintain functional activity.

The younger the patient and the earlier the appearance of symptoms, the graver the prognosis, as it is usually the parenchymatous form that is seen in persons under forty years, sclerotic changes belonging especially to advanced life.

Prognosis and Treatment of Chronic Nephritis.—Only a small proportion of patients suffering from chronic interstitial nephritis die from this cause alone, complications supervening to terminate the case in a majority of instances.

Chief among these are the pneumonias, especially bronchopneumonia, la grippe, cerebral hemorrhage, cardiac dilatation and inflammation of serous membranes, pericarditis being perhaps the gravest of the latter conditions.

Uremia, specially evidenced by convulsions, is a positive indication that failure of compensation of the kidney has occurred and the prognosis here is grave. Compensation may be restored one or more times, but the patient is badly crippled, and never regains his former degree of health but goes downward, finally, after a year or so, suffering his final attack of uremia or other complication, or dying of asthenia.

Treatment.—In the treatment of chronic nephritis much can be done by treating the patient and not the disease, endeavoring always at once to remove the cause, wherever known.

As chronic interstitial nephritis exists for years before its symptoms manifest themselves, or is accidentally discovered, proving that there is a long period of perfect compensation, diuretics should never be used until there is actual need for them. The same general rules as obtain in compensated heart murmurs should apply with equal force in this disease. Once the diagnosis is made the cardinal rule of "MODERATION" should govern us in considering the case in hand.

Some general rules as to hygiene are essential.

[1] Read before North Branch Philadelphia County Medical Society, October 8, 1904.

The patient should wear flannels the year round, that the skin action may be active and steady, and to protect him from marked changes of weather.

When possible, the winter should be passed in a warm, equable climate.

A country life, rather than seashore, is probably better for the patient as in the former environment there is less temptation and opportunity to indulge in the many dissipations of seashore life, such as social events, irregular hours of sleep and the like.

Bathing.—Cold baths are interdicted, as they throw too much work on the kidneys, but hot baths are serviceable as they enhance skin action, and thus relieve the kidneys. They may be warm packs, Turkish, vapor or hot-water baths.

Massage is particularly useful when the patient is confined to bed for any reason, aiding in elimination of effete products by the skin.

Rest in bed, when albumin is severe and persistent, or when the heart shows signs of weakness, is admirable in conserving the strength of the patient and should be insisted upon now and then. The patient should rest in bed for ten of every twenty-four hours to relieve heart action and diminish general activity.

Waters: An abundance of water is required to replace the excessive excretion of water and to keep the solids in solution. We must not go to excess with this line of treatment, however, as the tension may be increased by ingesting too much water and our efforts to aid would become reactive. Three liters of fluid daily is said to be a proper amount to be ingested (Anders). The carbonated waters are strongly indicated in order to counteract the high acidity of the urine which is usually present.

"An alkaline urine dissolves exudates" (Tyson).

Alcohol: "Malt liquors are bad; spirits are worse; the best are those which contain alcohol in from 5 to 8 per cent., such as acid wines" (Millard).

Diet: Nitrogenous foods must be decreased considerably as they increase the work of the kidney by favoring increased secretion of urea. We must not restrict the diet too much, as strength must always be maintained, and this adjustment will call for nice discrimination upon our part.

Coffee and tea should be partaken of sparingly, if at all. Milk, or articles of food prepared with milk should be given an important part in the dietary. Meats and meat gravies should be greatly reduced, though fish and oysters may be freely eaten. Patients should be abstemious in dining at social functions as the food there consumed is highly seasoned, and often washed down with the stronger alcoholic preparations.

Systematic Treatment.—Here our object is to inhibit or arrest the sclerotic and degenerative changes, and to overcome the ever-present and increasing anemia. For the first we have recourse to potassium iodide, hydriodic acid and mercuric chloride; for the latter, to arsenic and iron.

Mr. Bright, in his first description of chronic nephritis, or Bright's disease, strongly urged the use of tannic acid for the albuminuria on account of its astringent effect, and a favorite treatment years ago was sodium tannic or gallic acid, in three to five grain doses, t.i.d.

Iron meets the dual requirement of an astringent and tonic, and is agreed upon by nearly all writers as being indicated, but must not be used in too large doses, as excessive doses lock up the secretions too much and cause danger of uremia.

Symptoms prominently occurring are best treated as follows:

High tension: As high tension is more or less esential in chronic nephritis with full compensation, we must carefully weigh the conditions present before we decide that the tension needs to be lowered, our guide being certain symptoms, as flushing of the face, congestive headaches, vertigo and epistaxis, while the danger of cerebral hemorrhage is always to be borne in mind.

If the heart is all right we may use veratrum viride or aconite over long periods, while glonoin is used if any cardiac weakness is manifest.

Low tension: this predisposes to serous effusions (transudates), and a decrease in the daily output of urine, thus increasing the tendency to uremia and must be combatted vigorously. Here digitalis, combined with glonoin is admirable, as the heart is weakened.

Effusions may be either transudates or exudates. In either case the indication is to get rid of the effusion as quickly as possible. If a transudate, increase the tension; if an exudate, absorptives or local applications are useful. If these measures fail we may tap the cavity and inject adrenal solution, which seems to have the happy effect of preventing further accumulation of fluid in serous sacs.

Salines, cathartics, by their osmotic action, play an important part in favoring absorption.

Counter-irritation: this is useful in the parenchymatous form, where there is so much congestion of the kidneys. Dry cups—better wet cups—are used over the kidney area, often relieving the congestion and immediately improving diuresis.

Drowsiness is to be met by decreasing and restricting the solid diet, by increase of liquids and free elimination by purging or sweating rather than by using diuretics too freely, holding this class of drugs for later use.

Dropsy: when edema is slight, massage, bandaging the limbs, rest in bed longer in the mornings, or a rest in the middle of the day may be sufficient to reduce or check it. When it increases and interferes with the function of any organ we must then rely upon diuretics and other eliminants to aid us. If the legs remain distended with fluid and the skin shining, pearly white, we may practise the "antiphlogistic touch of the therapeutic knife," as used by Pancoast,

which consists in lightly puncturing the skin in many places with a fine lancet or scalpel, permitting the fluid to exude from the superficial tissues. Southey's tubes may also be used when above indications are present.

Many authors speak of the danger of erysipelas from these procedures, but it may be avoided by asepsis and common sense.

Diaphoretics: are useful from the very beginning of treatment as their use eliminates toxins and saves the kidneys much extra work, and they should be used regularly and systematically, relying upon baths,—water and hot air,—with occasional use of drugs, as sweet spirits of niter and spirits of Mindererus,—the latter in the well-known Basham's mixture, holding pilocarpine for occasional emergency use.

Diuretics should not be used when perfect compensation is present, but are indicated when there are scanty urine and much dropsy. When deficient heart action exists we use drugs which act on both heart and kidneys, such as caffeine, scoparius, digitalis and *Convallaria majalis.*

If dropsy is due to deficient kidney function and the heart is in good condition we may employ the potash salts, squills, sweet niter, diuretin and urotropin.

Asthma is a symptom of increasing intoxication and is often present for a considerable period of time before other marked symptoms of toxemia develop. Elimination, particularly by the accessory organs, must be practised thoroughly in order to overcome the condition.

Chloral may be used. At times venesection will do good. Other cases do well on small doses of morphine hypodermatically, repeated only as needed.

Edema of glottis appears suddenly, is dangerous and needs prompt attention. Inhalation of steam, cocaine spray combined with adrenalin, scarification, counter-irritation or leeching may be practised, and, as a last resort, tracheotomy is to be done.

Epistaxis is due to high tension. The general indication is to lower blood tension. Locally, pressure of the non-elastic capillaries will do good.

Obstinate Vomiting or Diarrhea.—These are symptoms of great toxemia and must be promptly met. Vomiting is usually relieved by lavage; diarrhea by sweating, or diuretics. Do not check the diarrhea completely as it will cause retention of toxins and may precipitate uremia.

Pruritus is usually due to urea crystals irritating the skin. Hot bathing, followed by four per cent. carbolic acid solution, infusion of conium leaves, or chloral, may be useful.

Palpitation is met by the use of *Convallaria majalis* and, at times, morphine.

If the nephritis is dependent upon other diseases as a causal factor, the primary disease is to be treated and the condition of the blood pressure and urinary excretion are our guide to the treatment of the nephritis.

Uremia must be discussed, as the symptoms of chronic nephritis are often really those of mild degree minus convulsions.

When convulsions, unconsciousness, etc., appear we know that failure of compensation has occurred and that this point marks the beginning of the end.

Venesection should be done at once, whether tension is high or low, as it speedily eliminates toxins. This is to be followed by injection of normal saline solution, which dilutes the remaining portion of the blood and stimulates the various functions, guarding against raising the blood tension too much.

Spinal puncture has been resorted to recently upon the hypothesis that uremia is due to edema of the brain, but the results have not been conclusive thus far.

For the convulsions occurring in the parenchymatous form, morphine in good doses may be used, but in the interstitial form may be used sparingly. Chloroform, chloral and the bromides are also used to combat the convulsions.

The matter of using morphine in the uremia of chronic interstitial nephritis has been largely discussed, many authorities being found who take sides on the subject. Loomis, who first suggested it, Ziemsen, Osler, Stephen MacKenzie, Anders, Wilson, Delafield and Roberts Bartholow, all favored its use, while Tyson, Hirst, Waugh and others advise against it. While on duty under Dr. D. E. Hughes, at the Philadelphia Hospital some years ago, I saw him use it in many cases of uremic convulsions and cannot recall one case where any ill-effects were noted.

Personally I treated one case of chronic interstitial nephritis for over five years, during which time a pronounced bronchopneumonia and three attacks of uremia developed, using morphine hypodermatically for asthma that resisted other measures to combat, always with happy results. My usual routine was to give pilocarpine the morning following the hypodermic and I never saw any untoward effects of its use in this case.

Exacerbations are to be treated exactly the same as the ordinary acute attacks.

Edebohls' operation of stripping the kidney capsule in chronic nephritis seems to do good in nearly every case selected by him and other careful operators and is simply mentioned here as it is out of our domain in the limits of this paper.

MEDICAL PROGRESS.

SURGERY.

Volvulus of the Cecum.—This disorder is known to be one of the few conditions causing obstruction in the lower gut which present fulminating symptoms. E. M. CORNER and P. W. G. SARGENT (*Annals of Surgery*, January, 1905), of London, present their deductions from the study of 57 cases. Forty-two of these were males, 13 females, and in two the sex is not stated. Cecal volvulus is, therefore, three times as frequent in men as in women. It has occurred in every decade

up to the eightieth year of age. A little over half the cases, however, are found between the ages of twenty and forty years. An analysis of this shows that although volvulus has always been described as one of the most acute forms of intestinal destruction, it is probable that the acute, subacute and chronic varieties exist. The total mortality was about 66 per cent., while the mortality after operation was 52 5-10 per cent. The cecum has been found in every region of the abdomen, even in the sac of in guinal herniæ. The left hypochondrium, however, is by far the most frequent situation. Here it is in relation with the spleen and stomach lying beneath the great omentum. The authors have attempted to make a classification of the different anatomical varieties. In the first, there is a mesentery common to the whole of the intestine, the cecum and varying length of the colon. The root of the mesentery is small, and its axis may be looked upon as that of the superior mesenteric vessels, it being around these that rotation occurs. The second variety is derived from the first, the root of the mesentery extending to a less degree than normal toward the right iliac fossa; thus the iliac mesentery is relatively shorter than that of the rest of the small gut or cecum, and offers a fixed point for the latter to rotate upon. In the first case, the rotation is in a segment of a circle; in the second, there being two fixed points, the curve is a segment of an ellipse. The third variety is a rotation of the cecum along its long axis. This form of axial rotation may be due to conditions either congenital or acquired.

The Matas Operation for Aneurism.—Every successful case reporting the application of this interesting technic is of the utmost value. HERMAN V. GESSNER (*Annals of Surgery*, January, 1905) cites the history of a negro, thirty-two years of age, who suffered from a syphilitic aneurism of the right popliteal artery. The tumor was five inches long by four and a quarter inches wide. He first noticed pain and swelling two months before admission. After constriction a median incision was made, and the internal popliteal nerves retracted inward. The sac was now opened and no clots were found. The lower opening was quite oblique, was easily found, and dark blood was escaping from it in small quantities. It was closed at once with No. 1 chromic catgut. The upper, or proximal, opening was found only after a prolonged search. It was one inch above the distal opening. No. 3 chromic catgut was used in a continuous Lembert stitch for closing this orifice. Removal of the Esmarch was followed by the escape of bright arterial blood, showing that the closure was defective or that some collateral existed. Hemostasis was effected by using a heavy Lembert stitch with an inch bite on either side of the sac. This further accomplished the firm approximation of the walls of the aneurism, so that no Neuberizing was necessary to do away with any dead space. At the close of the operation no pulsation could be felt in the dorsalis pedis. At the first dressing a moderate infection was found and the iodoform pack was replaced by a smaller one. The foot was warm, and pulsation was found where it had been absent in the dorsalis pedis. On August 15 the wound was entirely well. There was no pulsation whatever, although a slight tendency to edema was observed. On September 3d the patient appeared in excellent health. The circumference of the limb at the middle of the scar was 15⅜ inches against 14⅛ inches for opposite limb at same level. This difference was attributable to the scar and to the presence of the aneurismal sac. Pulsation is palpable in the dorsalis pedis. This case has, in the author's opinion, borne out one of the important claims made for the method, namely, non-interference with the collateral circulation. In spite of its early development, scarcely sufficient for the establishment of collateral circulation, the limb was supplied with blood after operation. Furthermore, the presence of a moderate degree of infection is shown by this case not to be incompatible with success.

PHYSIOLOGY.

The Physical Basis of Narcosis.—A subject that touches the borderlands of physiology, biology, pharmacology and clinical medicine, is that which attempts to explain the relative power of the various narcotics from the standpoint of physical chemistry. A new theory that seeks to show the mutual relationship of osmosis and narcosis and to discover the physical laws that underlie both, has been carefully worked out by J. TRAUBE (*Pflüger's Archiv*, December 1, 1904). Overton recently compared the various speeds with which different narcotics diffuse into protoplasm. He found that monatomic alcohol, aldehydes, ketones, etc., penetrate the cell wall more quickly than the diatomic alcohols and the amides of the monatomic acids, and then in decreasing order come glycerin, urea, etc., until are reached the salts of the strong inorganic and organic bases and acids, for which the cell-wall is wholly impermeable. The permeability is increased in homologous series by the substitution of hydrogen by methyl, and the latter by ethyl. He found that the narcotics pass through membranes the more quickly the more soluble they are in the lipoids such as fats, cholesterin, lecithin, etc. Overton and H. Meyer also pointed out that the good narcotics, anesthetics and antipyretics collectively belong to the substances that osmose quickly, and they proposed the theory that the efficiency of a good narcotic depends in the first instance on the degree of its solubility in lipoids. Overton assumes that the cell-wall, and if Quincke's theory be correct, that the walls of the foamy cell-contents contain lipoids, and the ease with which a substance penetrates these walls depends upon its solubility in these lipoids. Traube believes that there are grounds for denying that this is always the case. Instead of a foamy structure, he conceives of a membrane as a network of fine capillaries, without regard to whether it contains lipoids or not. Osmosis may be explained upon the principle of capillarity. Repeated investigations have shown that the greater the osmotic power of a water-soluble substance is, the more it lowers the capillary pressure of the water. Substances that are incapable of traversing membranes, increase the capillary pressure of the water in which they are dissolved. Diminution in capillarity and increased facility of osmosis run a parallel course. If two liquids are separated by a membrane, such that the surface tension of one is less than that of the other the former will osmose into the latter. Thus the difference in surface tension determines the direction and rapidity of osmosis. The force of osmosis is not osmotic pressure, but surface tension. In most, if not all instances in physiology, surface tension is to be put in the place of osmotic pressure in explaining dialysis. Whereas the number of molecules or ions determines the degree of osmotic pressure, it has no effect on surface tension; hence both forces must

be considered distinct. In determining the various solubilities of different substances, the author found that those are the most soluble whose surface tension is the least. Solubility, solution tension and surface tension are therefore intimately related. The surface tension of solutions is determined by that of the dissolved substance. Solution tension and capillarity are more intimately connected than solubility and capillarity. Thus methyl and ethyl alcohol are both equally soluble in water, but the solution tension of the former is much greater than that of the latter. The author discovered the following law, namely, that substances of equal capillary activity belonging to homologous series (ordinary alcohols, fatty acids, esters, etc.), lower the rise of water in the capillary tube in the proportions of $1:3:3^2:3^3$ . . . . . The author believes that the rapidity with which the narcotics penetrate the walls of the ganglion cells of the brain, is not due to the fact that these substances are soluble in the lipoids of the cell-wall, but is to be attributed to the surface tension. When the narcotics have penetrated the interior of the cell, they then dissolve in the lipoids and unfold their narcotic power in proportion to this solubility. As pure non-toxic narcotics are to be regarded those that dissolve in the lipoids without causing any chemical reaction, either union with or decomposition of the proteids or other bodies of the cell. On the other hand there is a series of narcotics which have a decided toxic action; which is easily explained on the basis of their constitution, since they give use to accessory chemical reactions. As examples of the latter may be mentioned nicotin, allylalcohol, phenol, etc. Even the pure narcotics are not entirely non-toxic, since, while they are soluble in the lipoids, they in their turn dissolve some of the fatty substance. It is doubtful whether a really good narcotic will ever be found. Experiments show that in the pure narcotics there is a close relationship between surface tension and narcotic power. According to Overton, in homologous series the narcotic action increases with the increasing content of carbon, with the substitution of hydrogen by alcohol radicals, as well as from tertiary through iso—to normal compounds. The same holds true of the capillary activity of these substances. The substitution of hydrogen or amido groups in place of a hydrogen atom, lowers capillary activity as well as narcotic power. It is also found that the narcotic action of homologous substances (as alcohols, esters, etc.) with an increasing molecular weight, increases in the proportions of $1:3:3^2$.

Ferments of the Blood.—There can be little doubt that the property of blood to give off oxygen to the tissues, is due to a special ferment to which the name katalase has been applied. Some interesting researches upon this body are reported by A. JOLLES (*Münch. med. Woch.*, November 22, 1904). It is readily destroyed by heat and acids, but hardly affected by alkalies. The amount present in blood may be estimated as follows: 0.05 c.c. of blood are diluted up to 50 c.c. with physiological salt solution. 10 c.c. of this dilution are then mixed with 30 c.c. of accurately neutralized peroxide of hydrogen and allowed to stand for two hours. After acidifying, potassium iodide is added, and the amount of iodine set free by the peroxide still present, then titrated with thio-sulphate of sodium. Normally one cubic centimeter of blood will decompose 18 to 30 c.c. of peroxide. The amount of katalase seems to stand in relation with the percentage of hemoglobin; by far the greater percentage is contained within the erythrocytes. Very low figures were occasionally obtained in tuberculosis, carcinoma, nephritis, jaundice and leucemia. The blood is also deficient in ferment in comatose conditions and it is possible that the symptoms here are in great part due to insufficient supply of oxygen in the nervous centers. There seems to be no fixed relation between the amount of katalase and oxydase (the ferment which converts hemoglobin into oxyhemoglobin) present.

Surface Tension and its Significance in the Organism.—Using as a test his own discovery that a solution of low surface tension will osmose through a membrane into a solution of higher surface tension, J. TRAUBE (*Pflüger's Archiv*, December 1, 1904) discuss the various manifestations of this force in the workings of the body. Since under normal conditions the blood does not pass into the stomach or intestines, one may conclude à priori that the surface tension of the contents of stomach and intestines is less than that of the blood. This is actually found to be the case. The author devised an instrument called the stalagmometer, which measures the number of drops in a given weight of fluid. By multiplying the result by a certain constant is obtained the number representing the capillarity of the liquid. The greater the number of drops the less is the surface tension of the solution. The blood has a very great surface tension. The significance of the formation of peptones depends upon a fact which has been experimentally established, namely: peptones reduce to a great degree the surface tension of the liquid in which they are dissolved, while proteids do not. As a result of this diminution of surface tension the peptones undergo dialysis. It has been found by Bernstein that only dilute solutions of peptone are found in the stomach and intestines, for peptones are mostly absorbed as quickly as they are formed. In digestive disorders in which the process of absorption is disturbed, there is a greater accumulation of peptones, with a resulting greater diminution of surface tension and hence a more active effort toward osmosis. In severe diseases, such as nephritis with gastric atony, ulcer of the stomach, and nervous anacidity, the surface tension of the gastric contents is much less than in the milder diseases. It is probable that this method of investigation will be of value from the standpoint of diagnosis. Indol and skatol are substances possessing a marked degree of capillary activity, that is, they strongly diminish the surface tension of the liquids in which they are dissolved. They thus have a marked influence upon intestinal absorption. It is found that a membrane which is semipermeable for a salt when it separates the pure aqueous salt solution from pure water, loses this semipermeability as soon as indol or skatol is added to the salt solution. The functions of bile are likewise partly dependent upon surface tension. Bile is a fluid of low surface tension. If this were not the case, it would not be capable of emulsifying fat, which has a low surface tension. Moreover this low surface tension enables the bile to moisten the wall of the intestine in order to hasten absorption. This same property explains how easily in icterus bile enters the blood and tissues during stasis in the biliary passages. In healthy kidneys the surface tension of the urine is much greater than that of the blood. In nephritis the surface tension of the urine is diminished, which explains the disturbances in the secretory activity of the kidneys. The urine can

never have the low surface tension of bile or milk, and it is remarkable that the following law holds good, namely: capillary-active substances, which diminish surface tension, (such as phenol, indol, benzoic acid, etc.), on their passage into the urine are transformed into compounds (phenolsulphuric acid, indoxylsulphuric acid, hippuric acid, etc.), which are markedly capillary-inactive, maintaining the high surface tension of the urine. If substances like the former were allowed to enter the urine, the kidneys would soon cease to function. Unilateral stagalomometric investigation of the renal secretion, would be in order in cases of suspected disease of one kidney. Thus blood-pressure and osmotic pressure are not sufficient to explain renal activity. On the other hand, surface tension does not explain all the phenomena of osmosis. Thus blood pressure determines the flow of the nutritive elements of the blood in the direction of the lymph. Moreover the rapidity of osmosis depends in some degree upon the extent to which the opposing fluids are soluble in each other. Chemical forces must also be considered. The frictional coefficients of the osmosing fluids must also be borne in mind and above all the nature of the membrane itself. If a membrane contains fatty particles, the surface tension of the osmosing fluid is markedly diminished and the speed of osmosis is thereby increased. It is well known that alkaloids, antipyretics, diuretics, narcotics, excitants, etc., belong to the rapidly osmosing class of substances; they are also on the one hand soluble in lipoids, and on the other hand they diminish the surface tension of the liquids in which they are dissolved. This diminution is of great significance, for it explains the marked change in the surface tension of the circulating fluids, in certain conditions even reversing the direction of the exchanges of fluid and giving rise to the possibility of abnormal chemical changes in the organism. As an example, amyl alcohol contained in fusel oil lowers surface tension, and has the capacity of soaking well into vital membranes. Hence, if in the smallest quantities it moisten the walls of the biliary passages, the rapidity of the changes there would become an abnormal one. Ordinary alcohol also lowers surface tension and thereby its ingestion accelerates intestinal absorption, particularly that of fats; in this respect it has a certain therapeutic value. The author concludes that the action of many drugs is dependent not upon chemical changes, but upon such changes as have been indicated above. Even the smallest quantities of these substances may have a marked influence in this direction, not temporarily, but for a prolonged time. The fact that bacteria, ferments and colloids are in the first case agglutinated, and in the latter two precipitated by electrolytes, has been rightly attributed to surface tension. Each dissolved particle of salt may be compared to a small magnet, which by virtue of its high surface tension attracts to itself the calloidal particles, etc., and thereby causes precipitation. The author found that the surface tension of sodium and potassium salts increases with the number of sodium and potassim atoms in the molecule. The ameboid movements of white blood cells have been attributed by Quincke to changes of surface tension. This is possibly true also of the manifestations of chemotropism seen in the movements of the spermatozoon in the fertilization of the ovum. Bernstein worked out a theory of the muscular contraction as due to service tension. In the field of toxins, service tension may explain certain phenomena. Thus tetanus toxin travels to the brain by way of the fatty nerve-fibers, while antitoxin chooses the vascular path. The toxin also penetrates the cells while antitoxin does not. The toxin is dissolved in the lipoids of the brain tissue, while antitoxin is dissolved in the cerebrospinal fluid. The toxin dissolves red blood cells, while antitoxin does not; the toxin is found in the bile and milk and not in the urine, and it is just the opposite with the antitoxin. These facts indicate that tetanus toxin osmoses and dissolves in lipoids with ease, while antitoxin does not. These results suggest interesting developments in the domain of toxins. It would be useful to cultivate toxins in capillary-inactive media, and to add to antitoxins capillary-active substances, so as to increase their osmotic power and hence their usefulness.

PATHOLOGY AND BACTERIOLOGY.

Protozoa-like Structures in Syphilis.—A very interesting post-mortem finding in a fetus eight months old, bearing distinct signs of hereditary syphilis, is reported by D. JESIONEK and D. KIOLENEMOGLOU (*Münch. med. Woch.*, October 25, 1904). In the kidneys, wherever the luetic changes were most pronounced, groups of 10 to 40 bodies were found which closely resembled certain protozoa in that they possessed a distinct capsule with homogenous protoplasm and well-defined nucleus. Similar bodies, but in less number, were found in the lungs and liver. Behavior toward dyes makes it improbable atht these structures were pre-formed tissue-elements. On the other hand, examination of syphilitic condylomata and of a second syphilitic fetus was absolutely negative, so that the real nature and significance of these elements could not be definitely decided.

Bacteriology of Noma.—A. HOFMAN and E. KÜSTER (*Münch. med. Woch.*, October 25, 1905) have succeeded in isolating a specific and hitherto undescribed bacteria from the tissues of a case of noma. If the necrotic tissues be examined a great variety of germs, including staphylococci, streptococci and diphtheria bacilli may be detected, but in the deeper structures, where inflammation is just beginning, only a short, slightly curved bacillus is found. This grows well on all culture media, but is not identical with other previously isolated in noma. The spirillum grows best in the presence of oxygen, is gram-negative and forms long chains. It may also be stained directly in the tissues, but here appears more like a bacillus.

Cause, Prevention and Diagnosis of Gastric and Intestinal Cancer.—The cells which make up malignant tumors are distinctly embryonal in character, but it is exceedingly improbable that they are human embryonel cells. G. KELLING (*Münch. med. Woch.*, October 25, 1904) is firmly convinced that all tumors of the intestinal tract result from the ingestion of fetal tissues derived from animals. Examples would be raw eggs, fetal cells from the uteri of the hog, etc. If macerated chicken embryos be injected into a mesenteric vein of a dog, distinct tumors will develop in the liver, and sometimes in the retroperitoneal structures after three to four months. The experiment is most often successful if old dogs are chosen, and the organs most susceptible to tumor formation are the liver and testicles. Proof that tumor-cells are really derived from other animals is to be found in the briochemical reaction. If a

rabbit be treated with an emulsion of tumor-cells its serum will eventually precipitate human serum, but also the serum of some other animal, usually chicken or hog. If chicken or hog serum be injected, the rabbit serum will in turn precipitate the tumor extract. In a small percentage of cases no reaction was obtained, probably because the embryonal cells of some animal not tested was responsible for the tumor. Possibly also the specific albumin may sometimes lose its characteristic properties. The precipitin reaction may also be used to test the blood of suspected carcinoma cases. Every organism affected with carcinoma will form a certain amount of precipitin against the parasitic cells, which can be readily demonstrated by removing a few cubic centimeters of blood from the vein at the elbow, and then mixing the serum obtained from this blood with a dilute solution of albumin obtained from a chicken or hog. In carcinoma a precipitate will appear in a few hours. Several cases with indefinite symptoms of gastric cancer but positive serum reaction were operated and a tumor was found. Patients on whom the serum reaction is to be performed should not be fed on large amounts of raw eggs, since the albumin may pass into the blood and give rise to the formation of precipitins, even if no cancer is present.

Pathology of Plants Compared with that of Animals.—In an interesting article E. KÜSTER (*Münch. med. Woch.*, November 15, 1904) discusses the various pathological processes which have been observed in vegetable tissue. While hypoplasia is occasionally observed in different organs of the animal body, and certain tissues even of the same organ may remain behind in development, these processes are by far more frequent in plants since these are more often exposed to inhibitory influences. Even the vegetable reproductive organs are occasionally hypoplastic. Metaplasia, however, is less frequent and limited only to abnormal development of the cell-membrane and the contents of the cell. Changes in form are especially rare, since the plant cell is usually surrounded by a firm membrane which fixes it to its position. It follows that migration, inflammation and infiltration are unknown in plant-pathology. Atrophy and necrosis do not occur; even the dead cell retains its original shape. Hypertrophy of cells, on the other hand, is not rare; it may be due to absorption of water when the vegetable tissue is exposed to excessive moisture, or an excess of nutritive material may be stored up when the conditions for growth are exceptionally favorable. In the former case the swelling is sometimes so marked that the cell-membrane is ruptured and the cell contents deposit on the outside. The formation of giant-cells is frequently induced by the presence of parasites; they differ from the above only in that they have multiple nuclei. Tumors often result from injury or the action of parasites; they have no definite shape or form; develop during a varying length of time, and differ from the tumors of animal pathology in that their growth is expansile and never infiltrating. Their finer structure is extremely simple, yet some, like the gall, are very complicated.

Toxin of Fatigue.—By means of a large number of careful experiments, W. WEICHARDT (*Münch. med. Woch.*, November 29, 1904) could prove that during muscular exercise a toxin is formed in the muscles, which can be easily separated from the other extractives by dialysis. If injected into fresh animals this toxin will cause intense fatigue, fall of temperature, stupor and death. It has the properties of a true toxin, since it is not dialyzable, and gives rise to the formation of an antitoxin if injected. The toxin is saturated by the antitoxin both in the living body and in the test-tube, according to the law of multiples. Unlike the toxin, the antitoxin is readily dialyzable and may be preserved for a long time. If taken internally, the antitoxin seems to have a remarkably stimulating action upon the muscle, so that it may become a valuable therapeutic agent.

Streptococci of Lochia.—The lochial secretion of the perfectly normal puerperal stage frequently contains a large number of streptococci. The explanation offered was that these were avirulent germs which differed considerably from the ordinary pathogenic varieties. F. SCHENCK and A. SCHEIB (*Münch. med. Woch.*, November 29, 1904) found the lochial secretion sterile in a large percentage of cases only during the first few days after confinement; later, streptococci were almost always present. These germs were in every way identical with virulent streptococci, since they were pathogenic to animals. The serum of animals treated with lochial streptococci agglutinated streptococci of known virulency as strongly as those which were injected. Cultures of the two forms were alike in every way. It is, therefore, probable that the granulating interior of the womb is the only safeguard against general infection.

Microscopical Examination of Lochial Secretion.—In every case of temperature during the puerperium the lochial secretion should be examined most carefully. The absence of streptococci, according to A. LEO (*Münch. med. Woch.*, November 29, 1904) almost certainly excludes a severe affection of the genital tract. Fever, if present, may then be due to (1) an extragenital cause; (2) simple retention of secretion; (3) a sapremic intoxication; (4) an infection with gonococci, more rarely with colon, diphtheria or tetanus bacilli. In the presence of streptococci, the following facts must be kept in mind: (*a*) Chains of four members are common during the normal puerperium, and are thus of no significance. (*b*) Chains of more than four cocci in the vagina generally cause fever or subfebrile temperature; if they occur in the secretion of the uterus itself they are still more likely to be responsible for the symptoms. The degree of phagocystosis present gives a good idea of the powers of resistance present. The time during which streptococci are found is also of great importance; if they occur late in the puerperium they are of less significance than early.

Fate of Uric Acid Introduced into the System.—Experiments conducted by W. EBSTEIN and E. BENDIX (*Virchow's Archiv*, Vol. 178, No. 3) leave no doubt that uric acid, injected into the ear-vein of a rabbit will deposit very soon in the epithelial cells of the convoluted tubules of the kidney in the form of spherical crystals. If both kidneys are extirpated and even large amounts of uric acid are then injected, no microscopical changes will be found in the liver or joints. Experiments conducted with unicellular organisms to determine which part of the cell has an affinity for the acid, were negative, since these animal cells, unlike vegetable cells, are extremely sensitive and rapidly die. If xanthin, hypoxanthin or adenin is used instead of uric acid, crystals will also be deposited in the cells and lumen, but with guanin the distribution of crystals is more uniform over the entire kidney.

Chorio-epithelioma of the Bladder.—It was formerly believed that a chorio-epithelioma could only

develop from the placental site in the uterus, but since then several cases have been reported where the uterus was not the seat of the tumor. The following case of W. S. DJEWITZKI (*Virchow's Archiv*, Vol. 178, No. 3) is probably the first case of chorio-epithelioma developing from the bladder. The patient, an unmarried woman of seventy-five years, died shortly after a curettage for hemorrhage from fibroids. At autopsy, an ulcerated, reddish mass, occupied the greater part of the bladder. Numerous metastases were found in the lungs, intestines and spleen. Microscopical examination showed that the tumor and its metastases were made up of Langhans cells and syncytium. Two explanations are possible for the presence of this tumor in a woman who had never been pregnant. It may have developed from remains of the Wolffian duct which is normally placed in the posterior wall of the bladder during embryonal life, or it may have started from the epithelial lining of the bladder itself.

Arteriosclerosis of the Pulmonary Artery.—In studying the microscopical changes in arteriosclerosis, H. W. E. EHLERS (*Virchow's Archiv*, Vol. 178, No. 3) discovered that the structure of the normal pulmonary artery differs somewhat from that of other arteries in that the muscularis forms two distinct layers: an internal one with the elastic fibers arranged longitudinally and the external one, where the elastic fibers form a dense network. Frequently the two layers are separated by a membrane, resembling the internal elastic membrane. The small yellow areas of degeneration which are sometimes found at autopsies affect chiefly the longitudinal layer of the media. This layer is considerably thickened and converted into connective tissue or into a homogenous substance, poor in nuclei.

Arteriosclerosis in Nephritis.—The most important lesion of the smaller arteries in nephritis is a marked fatty degeneration. If the kidneys are stained with sudan, the arteries will appear as red rings, surrounded by a very narrow muscular coat. The process probably begins in the elastic lamellæ of the internal limiting membrane and all organs except the heart and the skeletal musculature seem to be affected. L. JORES (*Virchow's Archiv*, Vol. 178, No. 3) concludes that there are no characteristic vessel-changes for nephritis since the above lesions are common to arteriosclerosis as such. Not all cases of nephritis, however, are accompanied by these changes. The significance of arteriosclerosis in nephritis is not always the same: it may be the cause or the consequence of the renal affection or both lesions may result from a third, common etiological factor. Even extensive degeneration in the kidney is capable of being regulated so that we must deal with another factor to explain the formation of connective tissue. This the author thinks, is the gradual change in the vessel-walls, which will eventually render the glomeruli impassable and thus diminish the blood-supply necessary for the production of new parenchyma in the place of the old. In this sense every nephritis would be of the arteriosclerotic type and would merely be a symptom of the general arteriosclerotic changes.

Relation of Islands of Langerhans to Diabetes.—The much-disputed question of the relation of the so-called islands of Langerhans to diabetes has been answered by K. KARAKASCHEFF (*Deutsch. Archiv f. klin. Med.*, Vol. 82, Nos. 1 and 2) as follows: In most cases of diabetes, the islands are absolutely normal, in others they may even proliferate. Glands with seriously altered islands from cases who have never suffered from diabetes are not uncommon so that there cannot very well be any relation between the two. It is more likely that the metabolism of sugar is affected by lesion of the parenchyma of the gland. Injury or intoxication will affect both parts of the gland, but the islands, being more resistant than the parenchyma, will suffer less. Even if a certain amount of parenchyma is destroyed, the islands are able to form new acini, so that diabetes will not necessarily follow. Embryological studies will prove that the islands are not definite organs but earlier stages in the development of the acini, so that they may be regarded as reserve material which can replace destroyed parenchyma.

Parasites of Smallpox, Vaccinia and Varicella.—Nothing is more interesting in connection with medical progres than the records of efforts to prove the relation of ameboid bodies to certain acute infectious diseases. W. E. DEKORTE (*Lancet*, December 24, 1904) states that if human vaccine lymph be collected in capillary tubes on the ninth day of the disease, a considerable number of unicellular globes with refractile contents can be demonstrated. These bodies on the warm stage at 98° F. show considerable motility, the changes in shape being sometimes so rapid as almost to evade observation. Leucocytes in human blister fluid kept at the temperature of the body may remain intact for five days or more. But it has been shown that these cells disappear from the lymph spontaneously on or about the tenth day whether situated in the vesicle or stored in a capillary tube. For these reasons the author believes it conclusively proven that the bodies under consideration are certainly protozoan parasites. To what class they belong, however, he does not pretend to say. The parasite is found in secondary vaccination as well. In hunting for them it is well to centrifugalize the capillary tube. The protozoon of variola and vaccina is an ameboid organism measuring about one twenty-five hundredth of an inch. It has for the most part an oblate spheroidal shape, but encysted forms are found which may be four or five times as large. It consists essentially of cytoplasms, which in the encysted form is enclosed in the well-marked cell wall, and of a rounded or ovoid nucleus, which apparently has a definite membrane. This nucleus can be seen to possess a definite nucleolus. In the case of variola no definite pseudopsia has been seen. The author expects to publish a paper shortly on the method of cultivating the organisms.

Inoculation Carcinoma.—This much debated question is discussed in a very extensive and elaborate study of the subject by R. MILNER (*Archiv f. klin. Chir.*, Vol. 74, No. 4), who believes that from the data at hand the matter cannot by any means be decided conclusively. A large number of cases (over 200) have been collected, classified and studied. The conclusions of the author based on this study are as follows: The so-called inoculation carcinomata can only be considered to have been produced, according to the present state of knowledge, by the implantation of carcinomatous cells. The implantation of carcinoma cells on endothelium does occur, but not very commonly, and the advice of Hanau to conduct experimental inoculations on serous surfaces holds good even at the present day. The implantation of carcinomatous growths in fresh wounds experimentally has been repeatedly done, but has only succeeded in a very small proportion of the cases, and only when particular precautions were taken. The implantation of carcinoma cells on intact epithelium has never been accomplished experimentally, with the exception of that on the ovary. It is almost impossible to exclude the possibility of retrograde metastasis or primary multiplicity of the

tumors. The unintentional transmission of cancer from one individual to another of the same species has never been positively observed. The fear of contagion by mere contact is therefore unfounded, but the accidental inoculation at operations cannot be so conclusively excluded, and the precautions already formulated must be observed. Further studies are necessary, which will aid not merely in clearing up the general and special pathology of the carcinomata, but may also solve some time the question connected with other infectious diseases.

Bacteriological Examination of Blood.—The great importance of a bacteriological examination of the blood is again emphasized by G. JOCHMANN (*Zeitsch. f. klin. Med.*, Vol. 54, Nos. 5 and 6). If streptococci are found, the prognosis varies with primary and secondary conditions. Of nine cases of the former, as many as three recovered. The portal of entry may be the female genital tract, the skin, lungs, as well as the gastro-intestinal tract, urogenital tract, tonsils and middle ear. Secondary streptococcus infections, such as occur after scarlet fever, diphtheria, etc., are almost invariably fatal. The portal of entry in these cases is usually the tonsil. The identification of the germ is also of great value from a therapeutic point of view, for streptococcus infection will call for treatment with Tavel's or Aronson's serum, while no results can be expected from this if staphylococci are found. Staphylococcus infection is more hopeless, and not a single case observed by the author recovered. Metastatic foci are very common, and the clinical picture of what was formerly called pyemia is frequently seen. Pneumococci are also frequently encountered in the blood, and in the ordinary croupous pneumonia they occur in about 33 per cent. Two-thirds of these cases were fatal. Occasionally an empyema may form the starting point for a general infection. In general infection after gonorrhea, gonococci can usually be detected with ease upon the plated blood. In as many as 83 per cent of typhoid fever cases the author could grow typhoid germs from the blood. The period of continuous fever is the most favorable time for examination, but the results were frequently positive earlier, while the Widal was still negative, and also later, during the remittent stage. A large number of cases of articular rheumatism and sepsis were also examined, but the blood remained sterile in every instance unless the case was complicated by secondary infections.

Non-Fatal Rupture of Aortic Aneurism.—Although it is contrary to the general belief that rupture of the sac of an aortic aneurism must be fatal within a very few minutes, a few cases have been recorded in which life has been preserved not alone for hours, but actually for years after this lesion. CHARLES H. MELLAND (*Lancet*, November 19, 1904) recites the history of a laborer, fifty-six years of age, who was admitted to the Manchester Royal Infirmary, June 7, 1899. While at work, he had suddenly brought up a bucketful of blood. He was exsanguinated, with all the characteristic signs of that condition. As the hemorrhage had ceased, saline infusion was used, two pints being injected into his median basilic vein. He immediately rallied and improved. The history was then obtained, which showed that he had had a cough for eight months. During recent years, he had noticed a stabbing pain in the chest, which was made distinctly worse on exertion. At the hospital he improved very much for three weeks. The heart was somewhat hypertrophied. There was dulness in the second left interspace. There were tracheal tugging and inequality of the pupils. The pulses were markedly unequal, the right pulse being of a water-hammer type. Three weeks later he had a severe hemorrhage. Two days after this it recurred, and he was again infused. An hour and a half after this, however, another hemorrhage proved fatal. At autopsy, the aorta was found to be so atheromatous that the orifices of the coronary aorta were practically occluded. The sacular aneurism arose from the convexity of the arch immediately beyond the left carotid, and was of about the size of a large hen's egg. The subclavian came off from the upper and outer part of the sac which was almost filled with laminated clot. Posteriorly, the aneurism had extended between the trachea and the esophagus. The trachea was thinned out and its mucous membrane softened. In this softened area there was a vertical slit, three-eighths of an inch long, through which the bleeding had occurred. As in the other reported cases, the limitation of the hemorrhage after free rupture must be attributed to the amount of clot in the sac, a portion of which had, no doubt, served as a valve to plug the opening. The value of saline injection in these cases is definitely proved, there being no doubt that the technic is indicated as soon as the hemorrhage is stopped.

PRESCRIPTION HINTS.

Treatment of Pruritus.—Various remedies employed in the modern treatment of pruritus are given by *La Quinzaine therapeutique, 10 janv., 1905.* Internally carbolic acid, in pills of 10 centigrams each, is preferred by many. Another school employs valerian as follows:

℞ Ammon. valerianate 0.5
Two to six pills daily.

Other remedies are the sulphate or valerianate of atropine (four granules of ¼ milligram daily), arsenious acid, cherry-laurel water, castoreum, musk, asafetida.

Locally, the following wash is recommended:

℞ Hydrocyanic acid	0.5-1.0
Bichloride of mercury	0.5-1.0
Sulphate of copper	1.0-5.0
Carbolic acid	5.0-10.0
Resorcin	5.0-20.0
Chloral	5.0-25.0
Bromide of potash	5.0-50.0
Water	1000.0

Alcoholic solutions of menthol, resorcin, or sublimate are equally as efficacious. After washing, the parts may be powdered with the following:

℞ Powdered starch	100.0
Subnitrate of bismuth	5-25.0
Acid salicylic	1.0

For small surfaces, the following is good:

℞ Cocaine hydrochlor.	0.30
Menthol	3.0
Vaselin	30.0

Genito-perineal pruritus demands a search for fissures, excoriations, parasites, discharges, diabetes, albuminuria, etc.

In vaginal itching, a suppository of

℞ Cocaine chlor. / Morphine chlor.	aa	0.02-0.03
Cacao butter		3.0

is excellent.

Hydrotherapy, electrotherapy or surgical intervention may be indicated in any form.

THE MEDICAL NEWS.

A WEEKLY JOURNAL

OF MEDICAL SCIENCE.

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SATURDAY, FEBRUARY 18, 1905.

HOSPITAL CONSTRUCTION IN THE PRESENT AND FUTURE.

CINCINNATI is about to begin the construction of a hospital of some 800 beds. The committee having in charge the preparation of the plans of the new hospital are very proud of the manner in which their duty has been discharged; but their pride is not shared by all of their fellow-townsmen. A well-known Cincinnati physician is in despair over the outlook, and writes a truly pathetic appeal for light on the subject of hospital construction, the important landmarks of which, he declares, are shrouded in "Egyptian darkness." "On a high, rolling plateau," he writes, "300 feet above the river we have twenty-four acres of land that is capable of being made anything the heart can wish. This beautiful site it is proposed to cover with an indefinite number of pavilions, that would make it look like an old Gothic camp, with a lot of tunnels that will be culture places for all that is vile. The estimated cost of this plan, for 800 beds, is from two to two-and-a-half million dollars; whereas a single large building of the same capacity, with all modern conveniences, would cost about half."

Our correspondent is evidently prepared to break with the tradition which for many years has dominated hospital architecture abroad—the tradition which has held up the pavilion system as the one permissible form of hospital construction. The followers of the pavilion idea, in their very laudable desire to avoid epidemics, to prevent overcrowding, to preserve good, natural ventilation, and to insure well-lighted wards, have held fast to the Hamburg-Eppendorf-Johns Hopkins models, and have erred in refusing to consider even the possibility of safeguarding patients' interests in hospital buildings of a radically different type.

In New York City the pavilion system, while never systematically attacked, has long been disregarded, for reasons chiefly economic. Hospitals must be easy of access to their patients, and on Manhattan Island accessible sites are so costly that a real pavilion hospital, consisting of widely separated one-story or at most two-story buildings, has not been thought of for many years. One may subdivide a huge pile like St. Luke's or Presbyterian into more or less disconnected units, and may call the units pavilions; but five-story or six-story buildings, housing superimposed wards, are not "pavilion hospitals" in the proper sense of the term. And yet, notwithstanding the absolute abandonment of the pavilion system (we refer, of course, to general and not to isolation hospitals) New York can boast of the possession of some of the finest hospitals in the world—hospitals affording to patients every comfort known to the inmates of the pavilion hospitals of Europe, and yielding, to their managers, the possibility of a much more convenient and economical administration. In the hospitals of New York overcrowding does not, or need not, find a place; natural ventilation is good and is supplemented, in some instances quite unnecessarily, by elaborate artificial aids; sunlight is not lacking; thanks to modern plumbing, filtered water, scrupulous cleanliness and efficient disinfection, epidemics are almost unknown; and even the pleasant garden breathing-spots which make so attractive the pavilion hospitals of Continental Europe, find a satisfactory substitute in such roof-gardens as one sees at the Lying-in Hospital, Mt. Sinai or in McKim, Mead & White's plans of the new Bellevue Hospital.

Ruppel, in his book on hospital construction (Anlage und Bau der Krankenhäuser nach hygienisch-technischen Grundsätzen, Jena, 1896), discusses the relative merits of two systems for

the building of hospitals—the "corridor" system and the "pavilion" system. In the construction of a large hospital he recognizes no other alternative, and in considering the two systems named, he promptly condemns the corridor plan because of the possibility it offers for the conveyance of infection along the corridors from ward to ward. The book is written for a period or for a country in which the handling of individual cases, according to the highly developed practice of the best New York hospitals, is not known. We know of a children's hospital in this city, where so carefully are the patients and their hospital belongings (clothing, eating utensils, thermometers, etc.) individualized, that the appearance of a sporadic case of diphtheria, scarlet fever or measles, gives rise to scarcely any apprehension of an epidemic; for experience has shown that such methods as are here practised tend to prevent epidemics. New York affords many striking examples of the possibility of meeting all reasonable hygienic requirements in a tall, compact, modern, fireproof hospital building. Is it not advisable, then, in city construction, to avoid the magnificent distances, the costly ground-plan and the extremely difficult supervision which the pavilion hospital carries with it?

Without condemning the Cincinnati plans (for we have not had an opportunity to study them in detail), may we not with propriety suggest to the building committee the advisability of a careful study of the hospital architecture of New York, which, we venture to think, represents more nearly than does the "pavilion system," American hospital architecture of the future.

CAN THE ETHIOPIAN CHANGE HIS SKIN?

THE prophet Jeremiah certainly had no inkling of the tendencies or aspirations of modern science when he assumed that cutaneous pigmentation is a matter beyond human control. Recent discoveries in the biochemistry of the coloring matters of the integument impart a certain degree of plausibility to the hopes of the colored man. The science of physiology is passing through a sensational era. Even death hath lost its terrors. The heart that has lain frozen in the ice-box for seventy-two hours is made to beat under the magic hand of Kuliabko. The quest for the elixir of youth has not been relinquished, for no less a distinguished scientist than Metchnikoff is inclined to regard old age as a disease, the cure of which is within the bounds of human possibility. A speculation of more modest scope is suggested by some of the recent work on the animal pigments.

In 1901, von Furth and Schneider isolated from the blood of insects a ferment tyrosinase, which acting upon tyrosin, one of the end-products of proteolytic digestion in the intestine, produces a melanin-like body. The beautiful colors of the butterfly's wings can thus be traced back to a lowly origin in the food-canal. Besides showing with what wise economy Nature sometimes utilizes the very wastes of the body, this discovery served as a forerunner of one of more immediate value. Florence M. Durham has reported to the Royal Society her discovery of the presence of tyrosinase in the skin of certain pigmented vertebrates, such as rabbits, rats, and guinea-pigs. In acting upon tyrosin, this ferment produces a pigment which corresponds in color with that of the animal from which the tyrosinase is obtained. This result suggests that for each color there is a specific tyrosinase. In all probability these ferments are present in the skin of human beings. Hence the natural color of the skin is to be attributed to pigments which have their source in the end-products of proteid digestion. As another instance of the extreme complexity of physiological processes, is the further discovery by Florence Durham that tyrosinase cannot bring about the transformation of tyrosin into pigment without the presence of an activating substance.

Tyrosinase is a ferment normally present in the skin. To what, then, are to be attributed the differences of color seen in the various races of mankind not to mention the innumerable gradations of complexion found in individuals of the same race? Three possibilities suggest themselves. First, the amount of tyrosinase may vary in different individuals. Second, the amount of tyrosinase may be constant but the activating substance may vary, or, owing to differences of environment, the ferment may unfold its activity to a varying degree. Third, the amounts of tyrosinase and activating substance may be constant, while the quantity of tyrosin produced in the organism, either in the intestinal tract or in the tissues, may vary within wide limits. The second possibility would seem best to serve as the basis of a working hypothesis, to explain the wide differences in cutaneous coloration.

In elaborating this hypothesis other factors

must be considered. The adaptive capacities of the organism and the influence of the sunlight have been determining factors in the evolution of the pigments of the skin. The colored and dusky races have had their origin under the hot sun of the tropics. It would seem as if the darkening of the skin from the accumulation of pigment is an adaptation by which the individual is protected against the ill-effects of excessive sunlight.

In this connection the experiments of R. C. Schiedt have an important bearing. This investigator deprived oysters of one of their shells and exposed them to pure light, with the result that the animals secreted pigment over the whole of their body. The chemical or blue rays produce the same pigment, but not so with the red rays, which, however, protect the animal against the pathological changes due to irritation. On placing the animal in darkness all pigment disappears.

These new experiments indicate that probably the deposition of pigment in the skin of higher animals is the result of a chemical process, initiated under the influence of the blue, or chemical rays, having for its object the protection of the organism from the irritating effects of the latter. From this viewpoint, the bronzing of the skin and the appearance of freckles in summer receive a rational explanation.

It may be that under certain conditions the organism may produce the pigment-forming ferment, which has been previously absent, or present at most in very small amount. Habitual exposure to strong sunlight, or in certain pathological conditions, the product of perverted metabolism, may initiate or stimulate the formation of tyrosinase, with the consequent deposition of pigment in the skin, or even in the internal organs. In the latter case, the presence of the pigment may be the starting-point of malignant new-growths (melanosarcoma).

Besides being a normal, physiological manifestation of the organism, an adaptation for self-protection, cutaneous pigmentation occurs in a number of pathological conditions. Bronzing of the skin occurs in Addison's disease; in affections of the uterus (chloasma uterinum); in cystic degeneration of the ovaries; and, according to Withington, in scurvy; chronic tuberculosis, especially of the peritoneum; in cirrhosis, particularly in Hanot's hypertrophic cirrhosis with diabetes; in certain pancreatic affections, with or without diabetes; in old amyloid disease; in chronic splenic enlargement with or without malarial poisoning; in pellagra; in "vagabonds'" disease; in chronic rheumatoid arthritis; and in exophthalmic goiter. This wide range of the occurrence of cutaneous pigmentation, suggests that probably the latter is the result of some metabolic derangement.

In the light of what is now becoming known about the origin of the bodily pigments, one may assume that in severe wasting diseases there is a rapid destruction of the tissue proteids; tyrosin is produced in large amounts, and the organism seeks to get rid of this through the action of tyrosinase, which converting it into pigment, causes its deposition in the skin. Just as the body gets rid of a large excess of sulphur by causing its accumulation in the hair, under the form of keratin, so, possibly, the appearance of an undue amount of coloring matter in the skin is a manifestation of excretion. Schiedt found that pigments produced under pathological conditions are not permanent, and agrees with Loeb in believing that pigment granules are excretory products of protoplasm.

If one attempt to speculate further upon some of the hidden possibilities of continued investigations on this interesting theme, certain ludicrous results suggest themselves. Since the presence of pigment in the skin is the result of the action of tyrosinase, then, if one can obtain control over the latter, either regulate its action or destroy it altogether, one might change the complexion of an individual at will. Recent work on the antibodies has been extended to the production of antiferments. By injecting trypsin into the blood of an animal, the latter reacts with the formation of anti-trypsin. Why not inject tyrosin and obtain an anti-tyrosinase? Furthermore, since, according to Miss Durham, there is a specific tyrosinase corresponding to each color, one may also obtain specific anti-tyrosinases. If this should turn out to be the case, and there is nothing in it that is contrary to modern tendencies in physiology, then, with a broad variety of anti-tyrosinases before us, we may select the appropriate one, inject it into the individual desirous of changing his skin, and readily produce the result for which he has yearned. The race problem will have been solved. The brunette will no longer resort to notorious drugs for changing the color of her hair, but will find in anti-tyrosinase a scientific aid to her vanity.

THE LENGTH OF THE DENTAL CURRICULUM.

To all persons interested in dental education (except the few surviving advocates of a primeval art of "dental plumbing" as such), it is clear that dentistry is rightfully a medical specialty comparable for example to orthopedics or to what medical students universally term "G.-U." Argument in support of this proposition is not necessary. Every sapient individual appreciates, and the more fully every year, that an unwholesome mouth, befouled by carious teeth or rendered inefficient by the relative lack of teeth, is the widely inviting gateway for derangements and disease of the whole organism. This is the substantial basis on which rests the medical science of dentistry. The technic by which the complicated procedures of the dental practice of recent years are carried out is theoretically another matter. In practical fact, however, these aspects are indistinguishable in any notion of dental practice worthy any man's attention for an hour.

The problem which now confronts dental education in America, its home, is in some respects a serious one, for the official tendency is at the present time undoubtedly backward. Already most of the best dental colleges in the country had adopted a four-year course and had arranged an enlightened curriculum on a four-year basis. In most cases the first year's work was nearly or quite identical with that in the medical schools, the seemingly essential subjects, anatomy, chemistry, physiology, histology and the rest. This was working well, the more intelligent of the students appreciating this much of the fundamental medical education, while their instructors were pleased and gratified to be able to provide them the substantial basis of a liberal knowledge not only of the mouth but of the whole organism which the mouth only serves. As was to be expected, the attendance at the larger schools showed conclusively that this advance in the dental profession was appreciated by those also, mostly dentists, who advise the new students what they should require in preparation for their life-work.

But meanwhile, many small schools, especially in the Western States, which found themselves somewhat discredited unless they, too, should adopt the enlarged four-year course, combined and quietly succeeded in passing in the American Association of Dental Faculties a vote dogmatically requiring its members to offer a three-year course. The meeting was held in a Western State last August. This requirement was to the numerous small schools originating it evidently a practical financial necessity, for their students would not pay readily for a four-year course in numbers sufficient to make possible the running of these schools. The result of the vote, however, has been to force nearly all the dental colleges of the country to adopt temporarily at least, and often under avowed protest, the three-year course in addition to the four-year curriculum already in running order.

Here a rather surprising thing appears: Offering both courses, the shorter is found to be by far the more popular! that is in any school it secures the large majority of the students. Why this disappointing fact is real it is not easy to decide. The alternatives presenting are these: Either most candidates for the dental profession look upon it far to narrowly as something more, but not much more, than an artisan's trade and consider that a year saved in hastily acquiring the needful skill is also so much money saved. Or else, in the opinion of most advisers of the student-youth, three years is actually long enough time for the learning of what the average dentist needs to know. Either supposition seems unfortunate to the medical mind aware of the complexities and of the intricate inter-relations of the human organism, certain, too, that the widest and the deepest knowledge in the long run of a dentist's practice is the most productive to him, is therefore cheapest in monetary and temporal values. It seems unlikely that a majority of experienced dentists would avow or admit the latter of these two alternatives. The problem then for the faculties of our dental colleges is how to correct the former supposition in the minds of those who are to send boys into the dental profession, for to most faculties it is obvious that four years is little enough in which to give a dentist the theory and practice he actually needs to become a *doctor* of dental medicine or surgery. In medicine at large the tendency distinctly is toward a lengthening of the course beyond four years; no one ever hears even a suggestion that the former two years or even three years are sufficient. Is dentistry, then, one of the most important of the branches of medicine, not developing and broadening, not keeping the pace of the times in the learned professions? And if not, why not?

Surely such a fear is baseless and as surely the present backward step in dental education will soon be made up,—and more. In this desirable result the practitioner of medicine as adviser to many a household, may take a part.

ECHOES AND NEWS.

NEW YORK.

Class Election at P. & S.—The fourth year class of the College of Physicians and Surgeons at a recent meeting elected the following officers: President, F. J. Barrett, of New York; Vice-President, R. Ottenberg, of New York; Secretary-Treasurer, R. M. Brown, of Missouri; Class Poets, J. Victor Haberman and J. C. Mabey, of New York.

New German Hospital Dispensary.—The German Hospital has sold its dispensary at One Hundred and Thirty-seventh Street and Second Avenue and will build a new one on the site near the hospital building at Park Avenue and Seventy-sixth Street. At the last meeting, recently, August Zinsser was elected president of the board of managers to succeed Theodore Killian, resigned. Mr. Killian had served as president for twenty years.

E. R. Squibb & Sons.—This well-known firm announces that their house has been reorganized for broader work and wider service. Mr. Theodore Weicker has been elected its president. Dr. Edward H. Squibb is Chairman of the Board of Directors, and Messrs. Charles F. Squibb, Lowell M. Palmer, Herman G. Weicker, William M. Spackman and Edward M. Shepard are directors. They will be able to meet hereafter the constantly growing demand for Squibb quality in a considerably larger line of products than they have been able to suuply hitherto.

Montefiore Home's Report.—According to the annual report, recently received, of the Montefiore Home for Chronic Invalids and Consumptives the home has signalized the close of the first decade of its existence by obtaining 1,040 new contributors to its support. But though there are now more than 6,000 contributors, the total income of the home is only $100,000, as compared with $130,000, the annual expenditures. Altogether, the city institution and the sanitarium at Bedford Station have cared for 889 patients. Of this number all but 32 are free patients. The pressure of admission has throughout been very great, and there remained on the waiting list at the end of the year 65 persons, who had been admitted, but for whom room could not immediately be found; 1,266 applications were made for admission during the year, of which but 487 could be favorably acted upon. These constituted mostly urgent cases, to which class in every instance preference is being given by the executive committee. The care that has to be taken in making admissions, so that these shall become limited to applicants entirely deserving of the benefits of the institution, is very great, and justice to this can only be done through much labor and through personal investigation on the part of the special committee charged with this duty. The institution has also given outdoor treatment, including medicated baths and therapeutic applications to a considerable number, who come from their own homes to the institution during the day. Including expenses of every nature, excepting only permanent additions to property. The average per capita cost has been $283.98, as compared with $302.76 during the preceding year, this covering both the city and country departments. Food account at the city institutions has shown an average of 18.84 cents per diem.

The Social Evil.—The American Society for Sanitary and Moral Prophylaxis was organized last week at a meeting of thirty well-known physicians, clergymen and men of public spirit at the New York Academy of Medicine, No. 17 West Forty-third Street. In genuine sincerity it is announced that the society proposes to treat the social evil just as the community at present treats cholera, diphtheria or any other contagious diseases, which by its very presence menaces the health of large numbers. Dr. James Smith presided. Dr. Prince A. Morrow declared that the treatment of the social evil, as it is handled in this city, is nothing short of a crime. He denounced the interference of well-meaning reformers and faddists, who have dispersed this evil and by means of Raines law hotels and other institutions of the sort caused it to spread its blight all over the community. He declared it ought to be handled by the Health Department, just as they handle infectious and contagious diseases, and to treat it in any other way is a dangerous crime. Dr. Morrow wants to have literature distributed in colleges and schools where young men may get some idea of the extent of the peril to which many submit themselves. He suggested circulars and pamphlets and articles by competent authority in medical and lay journals. He expressed the belief that there is hardly a public woman in this city in normal health. Dr. Morrow's sentiments were accepted and indorsed without reserve by Prof. Felix Adler and Prof. Seligman, of Columbia, both of whom were present and made addresses. Dr. Ludwig Weiss and Edward T. Devine, of the Charities Organization Society, also discussed the subject. Bishop Potter and Dr. Lyman Abbott sent letters pledging their support to the society. Dr. Morrow said that $10,000 is practically pledged to start the work. Dr. Smith was authorized to draw up a constitution and by-laws, and at the next meeting officers will be chosen.

Dr. Farrand's Appointment.—Apropos of Prof. Livingston Farrand's appointment as secretary for the National Tuberculosis Movement, *Charities* writes: "Signal evidence of the draft which the greater social movements of the day are making upon the largest resources of the universities, is the announcement that Dr. Livingston Farrand, professor of anthropology at the Columbia University, has been appointed secretary of the National Association for the Study and Prevention of Tuberculosis. Within the year Dr. Samuel McCune Lindsley, professor of sociology at the University of Pennsylvania, has been named as secretary of the National Child Labor Committee. Both have offices in the United Charities Building, 105 East Twenty-second Street, New York. Of underlying significance is the fact that the tuberculosis association, which was inaugurated at a session of the American Medical Association, should enter upon a work which will grapple with the social, even more especially than the medical, problems of preventable disease, under the executive head of a man whose professional training and striking accomplishment have been in the field of natural science. Professor Farrand enters upon this new field, however, from one which could in no sense be called purely academic in its interests. His father was one of the founders of the Bureau of Charities in Newark, and following his own graduation from Princeton, he took a medical degree at the College of Physicians and Surgeons in New York, continuing thereafter an interest in both medical and humanitarian matters. He is a member of the Committee on Social Investigation of Greenwith House, New York, of which Professor Seligman is the chairman. It is in the field of psychology, ethnology and anthropology that Dr. Farrand has attained national reputation. Following studies at Cambridge and then at the German universities, he became a member of the faculty of Columbia University in 1893, and his new work will admit of his continuing in the chair of anthropology and the completing of certain researches now under way. Since

1896 Professor Farrand has been secretary of the American Psychological Association. He is recording secretary of the American Ethnological Society, member and president 1903) of the American Folklore Society, member of the American Society of Naturalists, the American Association for the Advancement of Science and the Washington Academy of Science, and fellow of the American Anthropological Association and the New York Academy of Science. His work as assistant curator of ethnology at the American Museum of Natural History has been notable. He was associated with Professor Boas in practically inaugurating that great series of expeditions among the Indians of the northwestern America and Eastern Asia, which will preserve lasting evidence of the life of the earliest Americans. Professor Farrand has taken part is no less than five expeditions, including the first Jesup North Pacific Expedition organized in 1897, and the Villard expedition among the Indian tribes of Washington, Idaho and Oregon. The art, social organization, religion and mythology of these people have been the subjects which have exacted the largest share of his time in working up the results of the undertakings. As a scientific investigator Professor Farrand has a reputation for uncompromising thoroughness and accuracy. In the words of a fellow scientist, "he unites executive ability, resource, and nerve"—all of them faculties upon which serious demand will be made by the large responsibility facing an anti-tuberculosis movement national in scope.

PHILADELPHIA.

Pottstown Hospital.—A new surgical ward is to be built to this hospital at a cost of $10,000. The sum named is to be taken out of the $25,000 appropriation expected.

Anti-Vaccinationists Active.—The Philadelphia Branch of the Antivaccination Society sent a delegation to Harrisburg to protest against the bill introduced by Representative Shearn, of Philadelphia. The bill in question makes vaccination compulsory in all first-class cities.

Orthopedic Graduates.—The Philadelphia Orthopedic Institute and School of Mechano-Therapy, 1566 Green Street, Philadelphia, has issued diplomas to thirty-four students in the scientific application of medical massage, Swedish movements and medical and orthopedic gymnastics; the same institution has issued diplomas to twenty-two students in electrotherapeutics.

Smallpox to be Curtailed.—The State Board of Health has ordered the officials of the town of Portage to obtain a pest house. If this order is not carried out the Board of Health threatens to quarantine the entire town and will call out the militia to enforce the order. All dogs running at large are ordered to be shot, for it is thought that they may be instrumental in spreading the disease.

Quarantine Raised.—The latter part of last week found the students at Gettysburg College a happy lot, for Dr. Welch of Philadelphia came to their rescue and pronounced the case which held them under quarantine chickenpox. When notified of their relief the students bombarded the wooden houses erected to shelter the guards. So intense was the fire of the students that the besieged had to find shelter behind trees.

Ether Ignites During Operation.—During an operation of tracheotomy it was found that the patient needed more anesthetic, and since the trachea had already been opened the ether had to be administered through the wound. Accordingly oxygen was passed through a bottle of ether and then given to the patient through the trachea. The etherized oxygen soon reached the gas jet burning above the operating table and ignited. Three of the assistants were burned, one badly, while the operator and the unconscious patient escaped. The accident occurred at the Samaritan Hospital.

Meeting of the Therapeutic Society.—The sixth annual meeting of the American Therapeutic Society will be held in this city on May 4, 5 and 6, 1905. The following men will read papers: Dr. Torald Solmann, of Cleveland, O.; Dr. Frederick Peterson, Dr. William J. Morton, Dr. Thomas E. Satterthwaite, Dr. Robert T. Morris, Dr. George B. Fowler, Dr. Wm. H. Porter, Dr. John B. White, Dr. Charles H. Knight and Dr. Carl Beck, of New York; Dr. Howard van Rensselaer, of Albany, N. Y.; Dr. George Butler, of Chicago; Dr. Howard H. Baker, Dr. Noble P. Barnes, Dr. H. W. Wiley, of Washington; Dr. S. Solis-Cohen, Dr. H. C. Wood, Dr. James M. Anders, and Dr. DeForest Willard, of Philadelphia. Dr. John V. Shoemaker is chairman on committee of arrangements. Headquarters will be at the Bellevue-Stratford.

Phipps Institute Report.—According to the first anual report of this institution 2,039 cases were treated, 1,130 were natives, 769 were foreigners and in 140 the nationality was not given. Of the whole number 6.5 per cent. were negroes. There was improvement in 537 cases, no improvement in 583, death occurred in 153, the results of the remaining cases are not recorded. In 656 cases the disease was present less than two years, in 485 from two to five years, in 171 from five to ten years, and in 148 not longer than ten years. Three hundred and sixty-five houseworkers and 101 laborers were affected with the disease. The longest stay of any patient in the hospital was 286 days. Although this was an advanced case the patient improved rapidly. The greatest gain in weight recorded in the dispensary service was 39¼ pounds.

A New Sanitarium for Consumptives.—Recently a charter has been obtained from Harrisburg incorporating the Reading Sanitarium for the Treatment of Tuberculosis. As a result of the activity of the Reading Medical Society many of the influential citizens of the place have been interested and they will personally and financially give aid to the project. The hospital will be established in one of the hills about Reading, but in the meantime a few beds will be isolated in the Reading Hospital until the special building is erected. The names of the directors under whose supervision the sanitarium will be erected are as follows: S. E. Ancona, the Rev. Robert Marshall Blachburn, the Rev. B. F. Callen, Dr. Israel Cleaver, Wm. W. Essick, Dr. F. W. Frankhauser, Dr. James R. Gerhard, Dr. Irvin H. Hartman, George M. Jones, Dr. J. W. Kauffman, Dr. Samuel L. Kutz, Wm. H. Luden, M. B. McKnight, John D. Mishler, Dr. John B. Raser, Dr. Howard S. Reeser, Dr. C. H. Shearer, Wm. D. Smith, P. R. Stetson, Dr. L. L. Thompson and O. M. Weand.

Wills' Hospital.—The first regular meeting of the Association of Clinical Assistants of Wills' Hospital was held at the hospital January 18, 1905. Dr. J. Hiland Dewey in the Chair. Dr. Stanley S. Smith read a report of a most interesting case of gumma of the iris and ciliary body occurring in the clinic of Dr. Charles A. Oliver. The case presented all the characteristic symptoms of the condition, and was fast becoming well. Dr. Smith stated that it was very instructive to note the secondary rapid diminution of vision produced by a haze in the media which had been probably caused by a deposition of the gummy infiltrates into the cham-

bers of the eye. In the discussion, Dr. John T. Krall commented upon the comparative painlessness of specific cyclitis and the character of the infiltration into the aqueous and vitreous which was chiefly composed of round cell exudates. In support of the belief of others that gummata of the ciliary body usually occur on the upper border of the cornea, he had seen but one in which the swelling was situated to the lower side. The various methods of administering mercury were informally discussed, the consensus of opinion being in favor of the use of mercurial ointment by inunctions. Dr. Josephine W. Hildrup read a paper upon ten cases of interstitial keratitis, nine of which had been studied in the clinic of Dr. Oliver, and the remaining one in her own clinic at the Women's Hospital. The ages of the cases varied from six years to fifty-eight years. The dyscrasia had been very carefully studied in all. Females had been preponderant in the series. With but one or two exceptions, all of the cases had passed on to resolution. The discussion, which was quite informal, embraced the forms of treatment which were the mot prevalent among the surgeons in the Institution. Dr. James A. Kearney stated that he had seen much good from the use of inunctions of protiodide of mercury. Dr. Dewey spoke favorably of the use of dionin, claiming that it had hastened resolution in a number of cases which he had seen. He had not had much experience with subconjunctival injections and had seen some unfortunate results, such as conjunctival ulceration, giving rise to disfigurement from their use. Dr. Kearney exhibited a case in which the right eye was being treated by the ordinary routine methods, supplementing these subconjunctival injections of common salt solution in the left eye; the latter organ (although the first involved) seeming to grow well much more rapidly than its fellow. Dr. Krall stated that he had learned to share the opinion of others that if injections were made under the conjunctiva, their effects would be to produce a number of adhesions between the bulbar conjunctiva and Tenon's capsule; and stated that even though the injections were made into the capsule, their good results were but transitory as adhesions were sure to occur. In other words, he, with many other authorities, believed that such injections did more harm than good. Dr. Kearney presented a case of double pterygium from Dr. William Zentmeyer's clinic, in which one eye had been operated on by the von Arlt method and the other by the McReynolds'. He exhibited a case of entropion of the upper lid, taken from the same clinic, in which a Hotz operation had been performed with little or no improvement, followed by a Jaesche-Arlt operation, which afforded a very satisfactory result. He also showed a case of entropion from the clinic of Dr. Frank Fisher in which the cilia had been transplanted and the tarsus removed, giving most excellent results. In the discussion, Dr. Krall was of the opinion that the McReynolds' operation had no advantage over the von Arlt. He believed that every case should be treated on its own merits, one method of operation not being applicable to all. Drs. Dewey, Milton A. Robinson, and Smith cited several cases in which different plans of treatment had been most successfully applied.

Philadelphia County Medical Society.—This meeting, which was held February 8, 1905, consisted of a Symposium on Gastric Ulcer. Dr. Joseph McFarland discussed the etiology and pathology. He first considered the morbid anatomy, the location of the ulcer and discusses at length the theories advanced as possible causes of the condition but suggests nothing new. He called attention to the experiments which have been performed to induce the lesions, some of which were successful. The serum of bacterial origin which when introduced into the stomachs of guinea-pigs produced ulcers, was also mentioned. He also spoke of the course of the disease and the complications. The next paper was read by Dr. A. P. Francine on the "Incidence in Philadelphia." He said that the disease is more common in the Northeast than in the South, except San Francisco. If the cases are chronic they are so from the start; the acute, he said, leave no scars and are often overlooked. The ulcers associated with tuberculosis and with nephritis are usually multiple. He believes more attention should be paid to the relation between nephritis and the stomach. In the 3,763 autopsies in Philadelphia, gastric ulcer was found in 51 of the cases, or 1.35 per cent. of the cases that came to autopsy. Dr. Campbell P. Howard, of Baltimore, by invitation, read a paper on "Symptomatology and Diagnosis." The symptoms are very obscure and misleading. The acute, he said, may be associated with other lesions. In 75 per cent. of the cases hemorrhage was the first symptom and perforation in three per cent. Of the Baltimore statistics 9 patients lost 40 pounds or over. In the next paper Dr. F. P. Henry discussed the "Medical Treatment." He informed the Society that gastric ulcer is a medical disease, and only when the case fails to improve after four or five weeks' of treatment should it go into the hands of the surgeon. In 75 per cent. of the cases medical treatment is successful. In speaking of the "Surgical Treatment" Dr. W. L. Rodman said that gastro-enterostomy and Finney's operation are the ones most favored. He is inclined to do incision when an indurated tumor is present arond the ulcer. He spoke of pylorectomy, the mortality of which, he said is not much greater than that of gastro-enterostomy. Excision of the ulcer-bearing area in the majority of cases is not followed by a recurrence. In opening the discussion Dr. Alfred Stengel said it was absurd to say that 60 per cent. of all the cases of carcinomata of the stomach arose from the site of an old ulcer. He finds atropine a very useful drug in the treatment of the disease.

Pathological Society.—The meeting of this society was held February 9, 1905, with vice-president Ravenel in the chair. Dr. Coplin exhibited the specimens of three cases of hemorrhagic pancreatitis. The specimens of his first case were from a child with a syphilitic history; the pancreas in addition to the acute lesion show a sclerosis. The bile and pancreatic ducts were patulous. There were multiple hemorrhages in all the other organs. The child was jaundiced. Dr. A. O. J. Kelly exhibited a specimen showing acute hemorrhagic pancreatitis. Dr. J. H. Musser exhibited one specimen showing a carcinoma of the head of the pancreas and an interstitial pancreatitis; a second one showing a duodenal ulcer associated with cirrhosis of the liver; a third showing ulcerative endocarditis, and a fourth showing carcinoma of the stomach and peritonitis. Dr. John Funke read a paper entitled "Syphilis of the Liver—Sclero-Gummatous Type." He called the attention of the society to the fact that at postmortem he made the diagnosis of miliary tuberculosis of the liver, but that microscopic examination proved he had to deal with a sclero-gummatous lesion of the organ. He pointed out that the nodules which were mistaken for tubercles were really spherical masses of fibrous tisue. He laid stress upon the fact that the increase of intralobular fibrous tissue is in all probability an overgrowth of the already existing reticulum pro-

duced by the irritation of the syphilitic poison brought to the liver by the blood current. He tried to impress upon the society that the sclerosis did not necessarily originate at the periphery and extend into the lobules between the liver cells. In the sections several miliary gummata were found, which he believed were of recent origin, probably a result of a second infection. Dr. H. R. M. Landis read a paper entitled "Tuberculosis of the Liver." He pointed out that tuberculosis of the liver may occur as four types. The acute miliary; chronic caseous; the tubercular cirrhosis; that form involving the bile ducts. Of the fifty post mortems at the Phipps Institute in only two were microscopic evidence of the lesion, while in the 20 cases examined microscopically all but two showed tubercles. Dr. D. J. McCarthy exhibited as card specimens two cases of internal hydrocephalus due to a cerebellar tumor pressing upon the aqueduct of Sylvius. In the second case during an operation nearly one half of the cerebellum was removed which gave relief to the patient for a short period only. The symptoms recurred and then several operations were resorted to, during which so much of the cerebellum was removed that easy access to the brain stem was obtained. Dr. John Funke exhibited a card specimen showing ulcerative endocarditis not only involving the mitral leaflets but also involving the posterior wall of the left auricle.

CHICAGO.

St. Francis' Hospital.—During the year 1904 there were treated 212 cases at this institution in Evanston, 23 of which were cases of appendicitis.

Cocaine Sold as Medicine.—Legislation for the prohibition of the sale of medicines which contain too great a percentage of cocaine was recently proposed by Alderman Ryan at a meeting of a subcommittee of the License Committee of the City Council. Alderman Ryan declared that many of these medicines are merely a pretense for the sale of cocaine, and mentioned an article sold as a remedy for catarrh which is used almost exclusively by those addicted to the cocaine habit.

Modifications in Bill for State Sanatorium.—Honorable Edward J. Glacking, who is the father of a bill for the establishment of a State sanatorium for consumptives, recently had a conference with the Secretary of the State Board of Health, Dr. James A. Egan, during which changes were suggested in the bill, although its main provisions remain unchanged. The district and county medical societies of the State will be invited to cooperate in the movement, and will be asked to interest the representatives from their respective distriets in this bill.

Removal of Tonsils in Schoolgirls.—Apropos of a recent cable dispatch from London, England, announcing Dr. Alice Neville Vowe Johnson as an advocate of the removal of tonsils of every one of the schoolgirls of that parish (Lambeth), the bulletin of the Health Department has this to say: "Dr. Johnson is a courageous woman and a wise physician. She knows, as every intelligent doctor knows, that the tonsil not only has no recognized useful function, but that it is the cause of more disease and death than the appendix itself. It is the nursery and hothouse for the propagation of every form of evil microbe, from that which causes ordinary 'quinsy sore throat' to the malignant septic organisms of diphtheria, pneumonia, tuberculosis, gangrene of the lungs, inflammation of the heart membranes and other fatal maladies. Even in conditions of health the tonsillar crypts are often filled with evil-smelling contents, consisting of disintegrating epithelial cells, fibrinous débris, and various septic organisms, among which staphylococci, streptococci, pneumococci and leptothrix are abundant. If this disgusting category be not enough to secure the deep damnation and the taking off of every tonsil in the young throat, it may be added that it is the commonest cause of mouth-breathing, defective speech and hearing, and mental dulness among children. Honor to Dr. Johnson, of Lambeth. *A bas la tonsille.*"

CANADA.

Public Health in British Columbia.—An entire ervision of the health regulations of the province of British Columbia will likely be made shortly. At present the health matters of the Pacific province are looked after by an official who consults with the Government of the province on all matters pertaining to the health thereof. It is proposed now to form and constitute a Board of Health composed of medical men, same as in some of the older provinces, and toward this end there has recently been held in Vancouver a conference of the Provincial Health Officer and representatives of the profesion and representatives from the Dominion Health departments. The Government also proposes to hold a conference with the health officers of the leading five cities of British Columbia to see what is best to be done to put the health affairs of the province on the best possible footing.

The Medical Faculty of McGill will Seek Fuller Union with the University.—There was held last week a meeting of the corporation of McGill University, when a resolution was presented from the Medical Faculty to the effect that in the opinion of the Medical Faculty, and in the welfare and interests of medical education in Montreal, it would be well for the Medical Faculty to have full union with the University. The Committee from the Medical Faculty which conveyed this resolution to the Board of Governors consisting of Dean Roddick and Drs. Shepherd, Gardner, Ruttan, Adami and Armstrong. The deputation received a warm welcome from the Board of Governors, and expressed themselves with full satisfaction at the step the Medical Faculty desired to take. Another meeting will be held, at which the Special Committee will meet the Board of Governors to arrange for the desired end.

Reminiscences of the Toronto Hospital.—Appointments to the house staff of the Toronto General Hospital are only eligible to those who have been licensed to practise in the province of Ontario. The present medical superintendent, Dr. Charles O'Reilly, was appointed to office in 1876, and ever since he has ably filled his duties. During the time he has been associated with the hospital the maternity department has seen 4,000 births, and there have passed through his hands 220 house surgeons, many of whom are associated in the large hospitals and medical colleges of the United States and Great Britain. Among others who have been house surgeons at the Toronto General Hospital are Drs. L. F. Barker, Thomas Cullen, Thomas Futcher and Thomas McCrae, Baltimore, and Dr. Don Armour, London, England. Many prominent practitioners in Toronto have also been house surgeons at the General. The number of patients admitted annually to the wards have increased from 972 in 1876 to 3,811 in 1904.

Reminiscences of the Montreal General Hospital.—The Montreal General Hospital was opened for patients in 1822, and in the following year a document was sent to the Governor-in-Chief setting forth the need of a medical school, and showing the excellent facilities the hospital afforded for clinical training. Almost im-

mediately the Montreal Medical Institute sprang into existence, its first teaching staff being composed of the doctors attending on the hospital. Six years later it became a part of McGill University. In 1854, Dr. Robert Craik, formerly Dean of the Medical Faculty of McGill University, was a house surgeon in the institution, when Montreal experienced its historic epidemic of Asiatic cholera The very first case brought into the hospital from a German emigrant ship scared away the six nurses and all the orderlies, and it fell to Dr. Craik and his only assistant, Dr. Chas. Ault, to admit these patients. From thirty to forty cases of cholera were always at the hospital that summer. Not a single case of infection occured in the hospital during the epidemic, and the two doctors had to depend upon convalescents for help in nursing. The training school for nurses was established at the Montreal General Hospital fourteen years ago, and since that time 241 nurses have been graduated. There are now 75 nurses in the hospital, including nurses-in-training and the graduates. In the jubilee year of the late Queen Victoria, a spacious home was erected for the nurses, and there is one room furnished by the Canadian Nurses' Association in memory of the late Dr. Kirkpatrick, a warm friend of the training school. Dr. F. G. Finley is the secretary of the medical staff.

GENERAL.

The Georgia Practician.—This new medical journal makes its initial bow this past week, and we offer it our hearty well wishes for a prosperous and useful career.

Infection from Books.—As bearing on the question frequently raised by timid people, as to whether our public libraries may not be factors in the spread of contagious diseases, *Public Libraries* for February prints the following letters, received from the librarians of the city libraries of Baltimore and Cleveland, respectively: "This library has been in existence now for about nineteen years, and during that time has had in its employ about 175 clerks of all ages, and among these clerks there has not been a case of any contagious disease, which I think is very good proof that there is very little danger. For the past eighteen years there has not been a single case of contagious disease of any kind in any of the public departments of the main library or its branches. As there are now more than 75 persons employed in these departments, and as each book is handled by not less than three people between the time of its return and re-issue, it seems probable that if contagion were readily carried by the books, the library employees would be affected."

New Hospital in Montclair.—Some years ago a woman walking in one of the streets of Montclair, N. J., saw a runaway team knock down a little girl. Hastening to her assistance, she saw it was a case where expert treatment would be needed, and that the child ought to be taken to a hospital. She found that there was none nearer than another town, many miles away—a long and painful ride for the little one, but which had to be endured. Going to her friends and acquaintances, this woman solicited subscriptions until she had enough to purchase a little plot of ground and erect a small one-story building of two or three rooms. This was the beginning of the Mountainside Hospital. As years went by, ground was added until it became a handsome property, and some serviceable, though far from ideal, buildings erected. About three years ago, however, the public interest in the hospital was so strong that the women and doctors connected with it determined to erect a new, modern hospital building, especially for surgical treatment. The work was intrusted to Cady, Bergh & See, architects, of New York City, and it was opened last week. Its first floor is devoted to dispensary work, having a spacious waiting rom and examination rooms adjacent, and an accident ward opening directly on the ambulance way. There is also on this floor a museum furnished with a collection of models made by the late Dr. Ayers and given by his sons. The main floor of the building contains the offices of the managers, the physicians, the two wards for male and female patients, and the group of rooms embracing the operating pavilion and its associated rooms, the sterilizing, etherizing, washroom, and the surgeons' dressing room. The upper floor has eleven private rooms, beautifully furnished as memorials; also diet kitchen, linen rooms, etc. It is said that there is not a room or passage in which the sun does not shine at some time in the day. The surgical fittings and implements of the most modern type throughout are the gift of Dr. James Spencer Brown, one of the visiting surgeons. In the main corridor are placed tablets in memory of Dr. Pinkham, who made the first contribution to the Mountainside Hospital, and Dr. Love, whose influence greatly contributed to the growth of the enterprise.

Boston Societies.—Boston Medical Library Meetings, in conjunction with the Suffolk District Branch of the Massachusetts Medical Society. The last meeting was held February 11, at the library. The paper of the evening was by Prof. Russell H. Chittenden. of Yale University, on the subject, "Physiological Economy of Nutrition." Dr. George W. Gay was in the chair. Dr. W. T. Porter, of the Harvard Medical School introduced Prof. Chittenden. The reader first mentioned the various dietary experiments which had been held all over the world, and gave statistics based on these experiments of the average bodily need of the average workingman or laborer. The lowest of these figures, those of Germany, which are 118 gr. of nitrogenous food, 56 of fat and 500 of carbohydrates per twenty-four hours, have until recently been accepted as the minimum rate at which an ordinary man could live and yet do this work and preserve his nitrogenous equilibrium. Dr. Chittenden claimed that while these figures show on what the men on whom the experiments were performed actually lived, they do not really represent the needs of the body. The ideal diet, he says, is the smallest possible amount of nitrogenous food on which the body-weight and strength can be maintained. The dangers of an excess of the products of proteid katabolism in the body are coming to be realized more and more, and the less that is eaten above the actual required amount the better. Dr. Chittenden's experiments covered a period of from seven to eight months, and were done on three classes of people: (1) A group of five professors who took but very little physical exercise; (2) a group of U. S. army hospital corps assistants, men whose physical work was moderate, and who each day exercised in a gymnasium; (3) a group of university athletes, men in constant training and engaged all the time in a variety of athletic sports. These men gradually reduced their proteid ingesta from an average of 120 to 130 grams to about 40 to 30 grams; their nitrogen from 16 to 22 grams to 5 to 8 grams. The fats and carbohydrates were not limited. They lived under this régime for seven to eight months, and practically all, after an initial loss of weight due to the first cutting down, maintained their weight, and, furthermore, their strength, ability to work and to resist disease, and kept up their nitrogenous equilibrium—this on a diet of one-third of what had hitherto been

considered the minimum—118 grams of proteids per twenty-four hours.

Prof. Lafayette B. Mendel, of Yale University, commented on these experiments from the point of view of one who at first thought them a dangerous procedure, but who had taken part in them and had been convinced of their value. He furthermore spoke of the ignorance on the part of the medical profession in general in regard to the weight and amount in grams or calories of the ordinary food consumed by patients.

Dr. Otto Folen, of the McLean Hospital at Waverley, described some experiments he had been performing on himself and a few others, in which a diet practically without nitrogenous food was taken in periods of from ten to fourteen days, and compared his results with those of Prof. Chittenden.

OBITUARY.

Dr. THOMAS H. SHERWOOD, a veteran of the Civil War, and for many years a medical examiner in the pension bureau at Washington, died at his home in that city on Thursday. He was a native of Delaware, was graduated in medicine at Philadelphia, and in 1861 was assistant surgeon of the Third Pennsylvania Cavalry. He also served as surgeon of the Twenty-seventh Pennsylvania Infantry, and was mustered out in 1865 with the brevet rank of captain for faithful and meritorious service during the war.

Dr. FRANK COWAN died February 12, at his home in Greensburgh, Pa., after an illness of several months. Dr. Cowan was born in Greensburgh, Pa., in December, 1844. He was the son of Edgar C. Cowan, who was a United States Senator, and after taking his medical degree became Secretary of the Senate Committee on Patents. Afterward he studied law, and in 1865 he was admitted to the bar. From that year until 1869 he was one of President Johnson's secretaries. Then he practised medicine, and then resumed the practice of the law.

Dr. PETER ROOSEVELT JOHNSON died at his home at Sag Harbor, L. I., last week, in his seventy-seventh year. He had not practised medicine for several years, but had interested himself in the study of Oriental religions. He owned large business property in Brooklyn, being a member of the corporation known as the "Johnson Estate." Dr. Johnson was a graduate of Columbia and of the College of Physicians and Surgeons in this city. He was one of a party of young adventurers who, in 1849, purchased a brig and sailed around Cape Horn to California in search of gold. The brig was wrecked and the party was stranded at Rio Janeiro for a long time.

CORRESPONDENCE.

OUR LONDON LETTER.

(From our Special Correspondent.)

LONDON, February 4.

A ROYAL PRINCESS OPERATED ON FOR APPENDICITIS—SIR FREDERICK TREVES ON PROFESSIONAL SUCCESS—TWO TYPES OF PHYSICIAN—HYGIENIC MATRIMONY—VITAL STATISTICS OF LONDON—THE PREVENTION OF LIVE BURIAL—CREMATION IN GREAT BRITAIN—DEATH OF A NONAGENARIAN DOCTOR.

SIR FREDERICK TREVES's enemies—if he has any—will be driven to think that the stars in their courses fight for him. As if fate had not been sufficiently kind to him in giving him the sacrosanct person of His Most Gracious Majesty to flesh his knife upon, it has now delivered the King's daughter into his surgical hands. Appendicitis seems to have a special predilection for our royal family, for besides the monarch himself and the Princess Victoria, his niece, another Princess Victoria (of Schleswig-Holstein) had to undergo an operation not long ago. The Princess Victoria of England is in her thirty-seventh year, and the fact that she is unmarried has led to a general belief that she suffers from some constitutional delicacy. However, this may be, her health has been unsatisfactory for a considerable time past, making sea voyages and periods of rest and seclusion at various places necessary. The appendiceal crisis seems to have been precipitated by an attack of influenza in the early part of January. At present all the omens are said to be propitious, and the distinguished surgeon will be able to add another successful case to his long list. It is related that at the Congress of Vienna, when Lord Castlereagh appeared in a black coat amid the crowd of diplomats arrayed in gorgeous uniforms and blazing with decorations, Talleyrand said, *Ma foi, milord, c'est très distingué!* Treves would be still more *distingué* if he presented himself at Court wearing a ribbon made of aristocratic appendices like an Indian brave with his belt of scalps. Many of his professional brethren doubtless envy him the glory shed upon his head by the sunshine of royal favor, but there is nothing else to excite their jealousy. His fame can scarcely be greater than it is, but his retirement makes it impossible for him to take fees. His services to the King brought him more honor than profit; for his attendance on the Princess he will get nothing except perhaps an additional decoration. It is believed by many that he will be made a peer, and probably he could have a peerage or anything else he wished—except money—for the asking. It may be wondered at that exalted persons should think it no indignity to accept without payment professional services, which given gratuitously to ordinary mortals would stamp upon them the brand of pauperism. Royalty, however, finds it convenient to believe that the mere honor of rendering it service is in itself sufficient reward.

The mention of Treves's name recalls the fact that he has been confiding to the Rev. R. J. Campbell, a Nonconformist preacher of what Byron might have called "forty-parson power," and editor of a periodical called *The Young Man*, his views on success in practice. He says that as a student he was "signally undistinguished." He suffered a good deal by the advice tendered to him to mend his ways. One of the most encouraging counsellors at the commencement of his career was a consulting surgeon of the London Hospital where he was a student. Referring to a surgeon then enjoying great fame the Mentor said: "I don't see why you should not do as well as he has done, because at your age he was a perfect fool." This naturally made Treves extremely happy. Speaking of the complaint often made by unsuccessful men that they have no luck, Treves said that as far as the medical profession was concerned, there was no such thing as luck. "Luck meant that a man was ready for a certain chance when it came along." Again, some students complained that they had no genius. As to this, Treves says that "genius is some sort of neurosis—an uncalculated nervous disease." He added that the few men of genius he had met were exceedingly impossible persons. Such people are, he thinks, entirely out of place in the medical profession, where even cleverness is not to be encouraged. "Indeed, of all desperately dangerous persons, the brilliant surgeon is the most lamentable. Cleverness finds its proper place not in the operating theatre but in the Egyptian Hall," the home of conjur-

ing and legerdemain. In regard to lack of influence Treves declares that "no person succeeds better than the man who stands entirely upon his own feet, depending on no one to assist his progress." He goes on to say: "The absence of means is another ground of lamentation; but the men who have succeeded most conspicuously are the men who started on nothing. The things that made for progress are difficult to define. Hard work comes first. Then there must be close observation. Of course, too, a man must know his profession. As Sir William Jenner put it, 'He must be in a position to be dogmatic.' There are two classes of dogmatic persons—those who knew everything and those who knew nothing of a subject. Again, a man must be kind. It is not kind to blurt out to a lady the news that she has a malignant disease. The last quality to a successful medical man is honesty, and it cannot too emphatically be laid stress upon. The late Sir Andrew Clark was a man who had no knowledge of dulness, and an infinite capacity for work. He was a particularly shrewd observer, amusing in his dogmatism, a man than whom none had a kinder heart, and almost pedantically honest. Sir Andrew started without money, friends, or influence, and he rose to the highest position in his profession." Treves's account of himself and his repudiation of luck as a factor of success must be taken with the proverbial grain of salt. His student days were, indeed, it is said, marked by a certain amount of Bob-Sawyerism; but he was a hard worker from the first, and his rise was exceptionally rapid owing partly to his own merits, but largely to that "luck" which he now somewhat ungratefuly scorns. Had it been his fate to serve, as John Abernethy and other distinguished men had to do, for a quarter of a century in a subordinate position he would assuredly not have been able to retire from practice at the age of fifty. His way was not blocked by veterans lagging superfluous on the stage. Of course, as Treves points out, a man must be able to take advantage of the chance when it comes to him, or it will profit him nothing. Nevertheless, it is true that many men never come within touch of the tide in the affairs of men which, taken at the flood, leads on to fortune. In expressing contempt for brilliancy, again Treves speaks just a little *pro domo sua*, for his most ardent admirers will not claim for him the possession of that quality. He is not a surgical artist, but a strenuous man who knows what he means to do, and drives straight through all obstacles at the object he has in view.

As Treves mentions William Jenner and Andrew Clark, I may be allowed to tell a story which illustrates an interesting difference of type in great physicians. Jenner was called to see a case which, after careful examination—and he could handle the abdominal organs almost as easily as if they had been on a plate before him—he pronounced to be one of cancer of the liver. Declaring, with the brusqueness of manner characteristic of him, that there was nothing to be done, he took his fee and his departure. The friends then invited Clark to see the patient. He told them that there was certainly a swelling "not of a benignant character," but added that the resources of medicine could do much to mitigate the lot of the sufferer during the few and evil days before him. The patient lived some three months, during which Clark visited him daily. If the patient did not live longer than he otherwise would have done, he doubtless died comfortably, while the physician was all the richer. Treves's statement that Andrew Clark rose without friends or influence is not strictly accurate. He made little way until the cholera of 1886 brought Mrs. Gladstone to visit the sick in the London Hospital. She was impressed by Clark's *copia fundi*, which equalled even that of her distinguished husband, of whose health she at once made the struggling physician the keeper. She sang the praises of her Scotch doctor in Society, and Clark soon exchanged a small dingy house in the East End for a palatial establishment in Cavendish Square. The bracketing together of the two men is rather grotesque. Jenner was one of the greatest clinicians and teachers that ever lived, whereas Clark's name, as far as the history of medical science is concerned, may truly be said to have been "writ in water."

The cry about the physical deterioration of the British people, which has been praised by prophets of various kinds, has lately found an echo in the pulpit. The Rev. Dr. Watson, better known to the lovers of the "Kailyard" school of literature as "Ian Maclaren," preaching at Liverpool, insisted that no young man should think of getting married without first being accepted as a first class life by an insurance office of unquestionable standing. Interviewed on the subject, the preacher said he would include women as well as men in the application of the rule. He explained that he did not mean that a delicate person should not marry, because many such people are constitutionally sound. The reason for insisting on a certificate from a good insurance company was that a person gets the benefit of an unprejudiced and independent examination. Dr. Watson expressed a hope that the time would come when the State would not sanction marriage unless both contracting parties could qualify for such a health certificate. His views will doubtless commend themselves to the insurance companies. But it may safely be predicted that the British people will need a very long course of education in the higher social hygiene before they surrender the right of marrying and giving in marriage as they please.

The report of the Public Health Committee of the London County Council for the year 1903, which was issued recently, shows the lowest death rate ever recorded, namely, 15.2 per 1,000, as against 17.2 in 1902, and a 62 years average of 22.3. On the other hand the report also shows the lowest birth-rate recorded since the regular tabulation of these statistics—28.4 per 1,000. How consistently and steadily the birthrate has fallen is shown in the subjoined table:

1861-70	35.4	1895	30.6
1881-90	33.2	1898	29.7
1891	31.9	1902	28.5

Total births, 1903	130,906
Total deaths	69,737
Excess of births	61,169

As the struggle of the public health authorities against the specific epidemic diseases first began to assert its supremacy in 1879, it is necessary to seek other causes to account for the declining birth-rate. One cause is to be found in the decline of marriage, the rate for 1903 standing at 17.4 as against 20.3 in the ten years from 1861 to 1870. The reduction in the marriage rate, however, is not in any degree commensurate with the fall in the birthrate, and to the decline in marriages must, therefore, be added as the chief cause of the reduction the growing dislike of motherhood. Even as it is, motherhood does not appear to be very successful for the rate of infant mortality is terribly high. During 1903 the total number of infantile deaths was 16,978, or 130 in every 1,000 births. It is true that

this is the lowest rate on record since 1891, when the rate was 153 per 1,000, but when it is noted that it means that forty-six infants die in every twenty-four hours, it is not surprising to learn that the Public Health Committee are giving the matter their "anxious consideration." Looking at the specific causes of mortality, it is to be noted that the figures for consumption, cancer, diarrhœa, and measles are all alarmingly high, though all, except cancer, show a decline as compared with 1902, while smallpox has shown a remarkable falling off. In regard to the milk supply of London, a further attempt is to be made by the Council in the next session of Parliament to obtain greater powers for ensuring purity—"which," the Public Health Committee add, "we think are urgently needed in the interests of the London public."

From time to time some gruesome story of live burial causes a scare in the public mind. Three cases of cataleptic trance, with alleged narrow escapes from too previous interment, have lately been reported, with sensational details, in the newspapers, and the Association for the Prevention of Premature Burial is naturally making the most of them. At the annual meeting of that body, held the other day, Dr. W. R. Hadwen, of Gloucester, said the recent case at Accrington should give pause to any skeptic who denied the danger of premature burial. Thousands of death certificates were given without a doctor having seen the body. In 1903 the Home Secretary had to admit that during the previous five years no fewer than 53,000 certificates were given without the cause of death being shown. He proceeded to say that an old woman who was formerly caretaker at the Cholera Hospital in Gloucester had told of the haste made to dispose of the bodies of patients who died from cholera. "Sometimes," she said, "we used to hear them kicking after the lid was screwed down, but we never opened it again, because we knew they had got to die anyhow." Hadwen is the doctor who carried out the testamentary injunction of the late Miss Frances Power Cobbe that her throat should be cut after death to "mak' sikker," as Kirkpatrick said to Robert Bruce, when he said he thought he had killed the Red Comyn. He is a leader in the Israel of anti-ism, anti-vaccinist, antivivisectionist, etc., etc. In the eyes of the medical profession he is a nonentity, but he doubtless comforts himself for this lack of appreciation by saying with Falstaff that wisdom calls out in the street and no man regards it. It must, however, he admitted that it is true that doctors often give certificates without seeing the body or taking any particular trouble to verify the fact of death. This evil the association above referred to is endeavoring to remedy. With that object it has drafted a Bill to be submitted to Parliament, which contains the following provisions: (1) No burial shall take place without a medical certificate of death. (2) No certificate shall be given without a personal examination of the body, and the certificate shall state the signs from which death is inferred. (3) The appointment by the Home Office of death verifiers in every district of England and Wales, who shall give their whole time to the duties. (4) The municipal authorities shall have power to establish waiting mortuaries, in which bodies shall remain until putrefactive decomposition sets in. The enforcement of some safeguards of this kind would certainly remove a hideous fear that lurks at the bottom of many people's minds. It is extremely doubtful, however, whether the bill will become law, for the medical profession is disposed to pooh-pooh the whole subject, and the association by which it is promoted consists of the most part of rabid cranks of one kind or another, who are sure to spoil their case by wild statements like those made by Hadwen.

Probably the fear of live burial makes some people seek post-mortem safety in cremation. That method of disposing of the dead makes steady but somewhat slow progress in this country. There are ten crematories in existence in the following places: London (2), Woking, Manchester, Glasgow, Liverpool, Hull, Birmingham, Leicester and Darlington; and two more will be opened in the course of the present year at Leeds and Bradford. The total number of cremations carried out since 1885, when the first crematory (Woking) was opened, is 4,407. The religious, or rather theological, objection is disappearing, but the requirements of the Cremation Society as to death certificates are much more stringent than those for ordinary burial, and afflicted families therefore have the remains of their defunct members incinerated only when they are compelled to do so.

The recent death of Dr. William Williams Morgan of Newport in Wales, at the age of ninety-six, recalls the fact that in this country, too, soldiers fired on people clamoring for their rights as human beings. At the time of the Chartist riots in 1839, he had not long begun to practise at Newport. Hearing firing from the direction of the principal square of the town, he went thither on an errand of mercy. He found the square empty of all save the dead and wounded, though frightened people were peering round the corners. From the windows of an adjacent hotel the muzzles of the soldiers' muskets protruded. He approached the nearest wounded man, holding up his hand as a signal of peace, but before anything could be done the man died. Dr. Morgan afterward learned that the soldiers were only prevented from firing on him by the town constable, who knew him as a doctor. Another wounded man whom doctor Morgan found professed to have been shot at while going to the post office, but he had a sword down the leg of his trousers. Eleven persons were killed during the riots. Dr. Morgan, who was a pupil of Sir Astley Cooper at Guy's Hospital, became a member of the medical profession in 1835.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-ninth Annual Meeting, held at Albany, January 31, February 1 and 2, 1905.

The President, Dr. Hamilton F. Wey, of Elmira, in the Chair.

SECOND DAY—FEBRUARY 1ST (*Continued*).

(Continued from Page 281.)

SYMPOSIUM ON DISEASES OF THE PROSTATE.

Etiology of Prostatic Hypertrophy.—The symposium was opened by Dr. L. Bolton Bangs, of New York, who said that when modern pathology took its rise the enlargement of the prostate that was found to occur in old men, was at first set down as inflammatory. Virchow in his work on tumors said that it was due to chronic inflammation which started in the glandular substance of the prostate. This view did not attract much attention, however. On the contrary for many years the French opinion that a certain amount of enlargement of the prostate was a usual senile process and that precocious enlargement of the prostate was due to presenility, occupied the attention of the medical world. This has now been practically disproved. Lately has come the opinion once more that the enlargement observed is due to a chronic inflammatory process which us-

ually has been in progress for many years. It is to this latter view that Dr. Bangs gives his adhesion.

Insidious Chronic Inflammation.—Dr. Bangs considers that the process by which the enlargement of the prostate takes place, remains latent for many years, though it would be readily detected if opportunities for observation occurred. This inflammation starts in the prostatic urethra, near the veru montanum. It may be due to many causes, but is practically always the result of excessive irritation of the genito-urinary tract because of overfunction, or some wrong form of function. Ordinary excesses sexual are almost sure to result this way, but such abuses as masturbation or coitus reservatus may produce it. This region is subject to violent engorgement and unless this engorgement is properly relieved by a period of absolute rest, the tendency to low grade chronic inflammation soon develops.

Developmental Relations.—The development of the prostate depends to a great extent on the development of the testis. Its condition in after-life depends to a great extent to the condition of the testis. Hence it is easy to understand how overfunction in one gland is followed by congestion and enlargement in the other. There may be years of prodromal symptoms, that have not been recognized as pointing to an affection of the prostate.

Unphysiological Sexuality.—Dr. Bangs has carefully investigated over 300 cases of the origin of enlargement of the prostate. In over 85 per cent. of the cases, unphysiological sexuality was found in the history. In younger men a state of sexual erethism is developed as the result of abuse which may make the prostate extremely tender on examination. In such cases speedy marriage may produce a cessation of symptoms. It must be remembered, however, that there may be abuses in the marriage state that will keep up the conditions of congestion, and so there will be no abatement of symptoms, especially is this true in regard to the practice of coitus reservatus. The irritation thus set up is only a step to inflammation and is not inflammation itself, but it predisposes the prostatic tissues to be affected by micro-organisms of any kind that may pass in the urethra or may find their way there through the blood stream. To Dr. Bangs it is evident that prostatic hypertrophy is not due to gonorrhea alone, since in certain cases in which there is frank confession of other sexual abuses and without any good reason to deny gonorrhea, no gonorrhea is in the history.

Perineal Prostatectomy.—Dr. George R. Fowler, of Brooklyn, said that the perineal route for the removal of the prostate is the most suitable for the majority of cases of enlarged prostate. Through the suprapubic route, the total removal of a large prostate is possible, but the ejaculatory ducts cannot well be spared. As the present tendency in surgery is more and more toward earlier operations, so as to prevent the serious symptoms that often make the eventual operation dangerous, this question of the preservaion of the sex functions becomes important. More manipulative skill is needed for the perineal route, but it is a more satisfactory operation in many ways. It may be done under general anesthesia, or under spinal anesthesia, and Tinker has done it under intraneural injections into the pudendal nerves.

Technic.—The resection of the prostate is perfectly possible from the perineum and the bleeding in these cases is not as severe or as difficult to control as might be expected. Ordinarily the prostate can be shelled out without any difficulty. If there is bleeding, the wound may be packed, but drainage tubes should be avoided. One secret of success is frequent change of dressing. If a drainage tube has to be employed, then it should be removed not later than forty-eight hours after the operation. Absolutely the most important bit of postoperative technic is to get the patient out of bed as soon as possible. This facilitates the drainage, prevents difficulties from infiltration of urine and by encouraging the patient, greatly shortens convalescence.

Methods in Prostatic Surgery.—Dr. Willy Meyer, of New York, said that no one operation is suitable for all forms of prostatic enlargement. In some cases the perineal route is undoubtedly the best. In cases where there is great enlargement of the prostate, the suprapubic route gives the most satisfaction. It is possible, with care, to preserve the sexual power by either route, since the ejaculatory ducts are not involved in the portion of the prostate that is usually most enlarged. As the operation is done earlier, the question of sex-power preservation becomes more important. In some cases, the knife is absolutely refused. Then the operator should be ready to suggest Bottini's method and employ it if it is permitted. Only if all these methods of treatment are refused, should the patient be introduced to the use of the catheter. This should not be entrusted to the patient, however, unless he is in such a station in life that he can be expected to take the precautions necessary to avoid infection. In a word, physicians should be expected to familiarize themselves with all methods of operation and select the method which is most suitable for the individual patient.

Prostatism Without Prostatic Enlargement.—Dr. Charles A. Chetwood, of New York, said that the train of symptoms usually considered to be connected with enlarged prostate may develop without enlargement of the prostate. There may be urgency and frequency of urination with pain during and after the act and even with some residual urine. This has sometimes been spoken of as due to contracture of the neck of the bladder. The pathological basis of the condition seems to be a fibroid stenosis of the vesival orifice. It is not due, as is sometimes said, to spasm, not to a fold of mucous membrane, but to the deposit of inflammatory exudate. This may or may not be due to gonorrheal origin, though it usually is due to the gonococcus. Enlarged prostate may be present without symptoms unless this contracture of the vesical neck exists. The blocking of the urinary passages may eventually lead to pyelonephritis.

Suprapubic Prostatectomy.—Dr. Howard Lilienthal, of New York, reported 31 cases of removal of the prostate by the suprapubic route without a death. In all of these there has been perfect recovery of function except in two patients. If the patient is uremic, the operation may be done in two stages without any difficulty and with very satisfactory results. With regard to the sexual power, it has been lost in no cases in which the patients were potent before. In many of the cases it has been found to have increased after the operation. Most of Dr. Lilienthal's operations were done on feeble subjects in advanced years. Two of them were suffering from diabetes and one from tabes. In several cases the operation followed a failure of relief of symptoms by the Bottini method. In

Dr. Lilienthal's opinion, this method of surgical removal of the prostate is preferable to all others.

Points in Technic.—For two days before the operation the patient is prepared for it by emptying the bladder with the catheter every three hours day and night. The urine is made antiseptic by salol administered in five-grain doses. Urotropin is given after the operation. The incision is two to two and a half inches long through the abdominal wall and then the bladder is inflated so as to push up the peritoneal fold. The bladder itself is then punctured, the puncture being stretched sufficiently by digital irritation so as to remove any stones that may be present in the bladder and also the prostate itself. The enucleation of the prostrate is usually rather easy, especially when the organ is pushed up by the finger of an assistant in the rectum. Care is taken not to tear the prostatic mucous membrane. If there should be abundant hemorrhage, which is rare, then strips of gauze are placed in the bladder to encourage clotting, but not to pack the viscus. By careful siphonage the patient is kept dry and comfortable. He is out of bed on the second or third day and the siphon may be removed before two weeks. The average length of time in the hospital is 4½ weeks.

Advantages of the Operation.—The advantages of operation through the suprapubic incision are the having the field of operation directly under the eye of the surgeon so that the cause of the obstruction may be observed. There is total absence of shock and this is of decided advantage in weak cases. Where there has been infection of the upper genito-urinary tract, the operation may be performed in two stages. Speed in surgery for the aged is important and this is the quickest method of operation with least loss of blood. Besides impotency rarely supervenes.

Perineal Prostatectomy.—Dr. Hugh H. Young, of Baltimore, detailed the results of two years' experience of removal of the prostate through the perineum. He considers that no one method is adapted to all cases and his experience has not been confined to the perineal route. He first did prostatectomy by the suprapubic method and it seemed ideal. After having three deaths in 30 cases, however, and finding how tedious convalescence was, he looked around for another method. He found that Bottini's method gave wonderful results and the millennium in prostatic surgery seemed to have come. There were some inexplicable failures, however, besides in 85 cases there were six deaths and some of them in subjects that were strong and with regard to whom no good reason for the fatal issue could be found. Then he tried the perineal route.

Technic of Operation.—The skin incision is made in the shape of an inverted V, though this incision is carried no farther than the skin. The prostatic gland is then reached by the ordinary lithotomy incision and as much of it removed as is deemed advisable. In 75 cases thus operated, he has had no deaths and in only two cases is there any residual urine. He is careful as a rule to save that portion of the prostatic gland in which the ejacultory ducts are contained and by so doing has avoided the epididymitis due to inflammatory closure or infection of the spermatic duct for which Albarran sometimes ties the spermatic duct in the groin. Where the prostatic urethra is preserved, the fistula in the perineum closes rapidly. The advantages of the perineal route are many. The prostate is nearest to the surface here and the procedures necessary are more under control. Convalescence is shorter than by the suprapubic route. Besides there is an absence of any tendency to hernia or any possibility of it, and when care is exercised, there is a preservation of sexual power.

Urinary Incontinence After Prostatectomy.—Dr. E. Wood Ruggles, of Rochester, said that in a certain number of cases there is incontinence of urine after prostatectomy. The course of the case is rather interesting in certain respects. Incontinence is apt to follow the operation for some time. Then for a period there may be good control. Afterward, control may be lost again. It would seem as though the scar in the prostatic region was first soft and incapable of enabling the bladder to retain the urine. Afterward by contraction it became harder and enabled the bladder to control the stream of urine. Later on, however, as the result of infection or over-irritation, the scar softened again with consequent incontinence. It is now known that it is not the removal of a portion of the bladder that causes the incontinence, for cases have been reported in which a slough of the bladder has occurred involving one-third of that viscus without bringing on incontinence.

Real Sphincter.—The real agent for the control of the urine in Dr. Ruggles' mind seems to be the external sphincter, the so-called compressor urethra. It is the partial or complete paralysis of this muscle that gives rise to the anomalous set of events which have been described in the postoperative course or certain cases of prostatectomy. It seems especially important then that care should be taken to avoid wounding the muscle in making the necessary incisions for prostatectomy. It is not, as has been thought by some, that the prostatic urethra is injured that is responsible for the continence. Freyer and Moynihan, in England, make it a rule to remove the prostatic urethra in their cases, yet their patients do not suffer from incontinence. Hence the advisability of paying more attention than has been the custom to the nerve supply of the compressor or urethra.

First American Operator.—Dr. Francis S. Watson, of Boston, said that a better state of mind is developing among American surgeons with regard to prostatectomy. They are especially to be congratulated in that it is no longer considered quite the thing to have a pet operation. Individual patients must be operated upon according to the necessity of their case. Very large prostates are better removed through the suprapubic incision. Most prostates, however, should be removed through the median perineal incision. Dr. Watson said that American surgeons should remember gratefully the work of Gouley in this regard. He stands between Mercier, the French surgeon, and American surgery as the bridge that leads up to the modern evolution of prostatic surgery. Undoubtedly he must be considered as the originator of perineal prostatectomy. It was from him that Dr. Watson first learned the rapid method of enucleating the prostate with the finger. He pointed out the planes of cleavage in the prostatic tissues out of which the large gland could readily be shaved. This is the operation now used more than any other and destined to supersede all others, except for special cases.

Sexual Power in Prostatics.—Dr. Watson said that he is rather surprised to find how much stress is being laid upon the necessity of preservation of sexual power in patients operated upon for the re-

lief of prostatic symptoms. Perhaps the greater delicacy of feeling on the part of surgery in this respect is due to the difference of patients in a more southerly climate. In the more ascetic atmosphere of northern Boston, patients suffering from severe prostatism have no interest in sexual matters. If, however, the prostatic urethra be saved, then the ejaculatory ducts remain uninjured and all that is possible to do for the preservation of sexual power is accomplished.

Differing Enlargements of the Prostate.—By a series of lantern slides Dr. Watson then showed the varying forms of pathological prostates and the methods of operating upon them. He emphasized the necessity for care in shelling-out the prostate and the thinness of the capsule in many cases that made it easy to lose the way. Where all three of the lobes of the prostate are enlarged, all of them should be removed, and this is indeed the essence of Freyer's so-called new operation, which is, however, not really different from the operations that preceded it. With regard to the operation of choice in any given case, the surgeon's judgment must be used. Where any one method is used to the exclusion of others, the results are not so favorable. With the suprapubic route, as compared to the perineal route, even in the best hands there will always be ten per cent. more of mortality than with the perineal route in good hands.

Importance of Diagnosis.—Dr. Albert Vanderveer, of Albany, said that the mere occurrence of symptoms of prostatism does not necessarily imply the existence of an enlarged prostate. The surgeon must be sure of the actual existence of some enlargement. In certain cases Dr. Vanderveer believes that the use of the catheter may be encouraged for a time. It seems especially fortunate that more conservative methods are now the custom. The old operation of the removal of the testicles was an example of an extreme fad in surgery. In operating by the perineal route, Dr. Vanderveer considers that gentleness so as not to tear the prostatic urethra is important. In postoperative technic, the most important thing is to get patients out of bed early, since this restores their confidence and gives them courage for convalescence.

Development of Prostatectomy.—Dr. Samuel Alexander said that the revulsion of feeling against such operations as the removal of the testicles had proved excellent for the evolution of prostatectomy. The hit or miss operations of the days before that time had been replaced by operations done with full knowledge of the anatomy of the part. Gouley had undoubtedly done good work, but his operation always left a portion of the prostate behind the urethra and thus often failed to afford relief.

Dr. Willis McDonald, of Albany, said that he had gone through all the phases from Gouley to Bottini and the suprapubic route. He still believed that some old men can be left to a catheter life under special circumstances. He does not think that in order to get into a house, when the front door is at hand, that he should have to climb up on the roof, and so he prefers the perineal route.

Dr. Parker Syms, of New York, said that prostatic urgery owed most to American surgeons. While Gouley had accomplished much, undoubtedly Alexander's work had been of great significance, coming particularly as it did when direct operations upon the prostate were not in favor. The perineal route is undoubtedly the method of choice for most cases.

THIRD DAY—FEBRUARY 20.

The Blood in Epilepsy.—Dr. B. Onuf read a paper on the subject which had been prepared by himself and Dr. Horace LoGrasso, of the Craig Colony, at Sonyea. Dr. Onuf said that so far the use of the bromides in epilepsy has not been found to produce any material deterioration of the blood. Epilepsy itself has, according to most observers, had no definite effect. There is no difference in the red blood cells and no constant variation of the white blood cells. There has been some diminution noted in the number of eosinophiles. The attacks themselves of epilepsy seem to have some effect on the red blood cells making them more spherical in shape and smaller in some cases and the blood plates become more frequent. The leucocytes sometimes drop in number just before a seizure takes place and do not come back to normal for some time. The first increase is noted in the lymphocytes which increase after an hour. The eosinophiles, however, may not return to normal for ten hours. In their experience at Sonyea, there seems to be a definite curve of reduction in the number of white cells whenever there are a series of seizures.

Fluctuations of Leucocytes.—In a number of cases, carefully observed, it was found that epileptics seemed to have a special tendency to fluctuation in the number of leucocytes and this physiological or pathological peculiarity seems to have a definite connection with their effection. There is always a tendency to a higher leucocytosis whenever the attacks become more frequent. Much more study is needed, however, to determine absolutely what the relationship of these changes is to epilepsy.

Extensive Carcinoma of Tongue and Neck.—Dr. William Seaman Bainbridge, of New York, presented a patient from whom he had removed the entire tongue and the large part of the floor of the mouth, with both sublingual and submaxillary glands, and all the lymphatic glands along the great vessels from the base of the skull to the dome of both pleural cavities. The patient not only recovered, but now, at the end of ten months, he is able to eat, talk and taste readily. His talking, and the fact that he tastes well are especially interesting, since apparently all organs necessary for these functions have been removed. The patient is a theatrical man, forty-eight years of age, whose mother died of cancer at the age of seventy-four years. He had smoked cigars for twenty years, often as many as twenty cigars a day and always on the left side of his mouth. Some years ago he noticed a pimple on his tongue, which proved refractory to treatment, but which disappeared on giving up smoking. When he took up smoking again, it recurred and now proved more obstinate than ever, becoming an open ulcer that would not heal.

Constitutional Symptoms.—The patient lost flesh, became sallow in color and generally cachectic. The ulcer continued to spread on the anterior portion of the tongue and in spite of the advice from several surgeons that an operation was necessary, the patient refused. He was treated with the X-rays for nine weeks but grew steadily worse. Portions of the tongue were removed and two pathologists independently declared the new growth to be very vascular epithelioma. At the end of the X-ray treatment, the tumor had extended across the tongue and the cervical glands on both sides were enlarged. Finally he consented to operation.

toid on the other side. Besides this branch incisions were made along the anterior surface of the sterno-cleidomastoid down to the clavicle. Care was taken during the course of the operation in the removal of the cancerously affected tissues that healthy structures should not be bathed in cancer cells. All the sheaths of the vessels were removed and the whole tongue was removed. Shellac was then applied over the wound. The patient had reduced in weight to 139 pounds. He gained 10 pounds in the hospital after the operation and now weighs 160 pounds. He can masticate any food, can talk very intelligibly and tastes well. He has no difficulty in swallowing any kind of liquid except water. This is his own story.

At the end of his discussion of the case Dr. Bainbridge said that no case of inoperable cancer had ever been cured by X-rays or by any other form of radiation. At most, a temporary improvement takes place and, in the most virulent forms of cancer, even this alleviation is not noticed.

Failure of X-ray.—Joseph D. Bryant, of New York, said that he believed that special emphasis should be laid on the fact that the X-rays are not curative in any of the severer forms of malignant disease and no delay in operation should be permitted when the chances are slight of being able to make a complete operation. Idiosyncrasy plays a large rôle in the matter of recurrence of cancer. In some patients what seems to the surgeon complete removal of all cancerous tissues recurrence is rapidly followed. In other cases, contrary to all expectation, recurrence is delayed or even may not take place at all.

Prophylaxis in Pregnancy.—Dr. T. Avery Rogers, of Plattsburg, N. Y., said that the most important part of prophylaxis during pregnancy consists in the care of the kidney and the skin. The accident most to be feared is cancer. This seems to be growing more frequent in recent years and seems to occur much oftener than ought to be expected in certain parts of the country. The statistics ordinarily count one case of eclampsia out of 500 labors. In and around Plattsburg, however, out of 75 births, 11 cases of eclampsia have occurred. Indeed the affection seems to be quite common and there is possibility of an infectious origin. The question whether it is climatic or microbic in origin is interesting and is open for further study. The queston of diet in these cases is also important. It is said that in Vienna, where many of the population drink wine containing the tartrates of sodium and potassium, there is less eclampsia than in other parts of the world. There is, however, insufficient urinary examination made with care to foresee the possibility of eclampsia and thus avoid it most effectually. It is not when nervous symptoms are already beginning that the patient should come under treatment, but a considerable period before this, when only the urine gives any warning of the approach of the danger.

Hackley Bequests.—The will of Charles H. Hackley, the Muskegon philanthropist, which was filed February 15, makes large bequests in addition to provisions for relatives and friends. To the Hackley Manual Training School of Muskegon $250,000 is given, which, added to $360,000 already given by Mr. Hackley, makes the school's total endowment $610,000; as an endowment for the Hackley Hospital, $300,000, less any sums given in Mr. Hackley's lifetime for this purpose; for the maintenance of the Hackley Public Library, $200,000; for the purchase of pictures for this library, $150,000.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON GENITO-URINARY DISEASES.

Stated Meeting, held November 16, 1904.

The President, James Pedersen, M.D., in the Chair.

Tuberculosis of the Bladder.—Dr. Eugene Fuller reported the case of a man, twenty-five years old, who presented himself with symptoms of one week's duration. Although he had lost flesh he considered himself perfectly well until one week previous, when he began to have frequent and urgent urination. There was some blood at the end of the urination. By rectal examination nothing could be felt, and he never had any gonorrhea. It seemed to Dr. Fuller as though the case might be one of tumor of the bladder. On passing a searcher a hard inflammatory mass was detected. The patient was taken to the hospital and placed in bed. Examination of the urine revealed a very few tubercle bacilli. Although there was danger of stirring up trouble by further instrumentation, nevertheless it was done with the utmost care and under profound anesthesia and there was found a tuberculous excrescence involving quite a large area extending back around the lumen of the left ureter. This instrumentation did no damage. One of the interesting points of the case was that the examination being conducted without causing trauma was not succeeded by any inflammatory reaction.

A second case, which occurred in a woman thirty-five years old, who was brought to him for incontinence of urine. The bladder really had no capacity, the patient soiling herself all the time. She gave the history that two years before she had frequency in micturition without any assignable cause. A careful examination was made microscopically but no gonococci found. Tubercle bacilli could not then be found. She was supposed to have a tumor of the bladder and expected to be operated on for this condition. On rectal examination the whole bladder seemed to be involved. The uterus was bound down. She was placed in the hospital. The bladder could not be distended at all, even under complete anesthesia. The bladder was thickened and collapsed. This viscus was inflated with air and scraped; these scrapings showed an abundance of tubercle bacilli. The woman left the hospital without much relief and her outlook was bad. Dr. Fuller doubted if the bladder would ever gain its elasticity because of the pericystitis and because of the damage done by washing the bladder for two years with various strong solutions. The trauma produced by such washings would naturally stir up the tuberculous condition and tend to provoke it to invade the muscular and the perivesical tissues, the result being the existing pericystitis.

Prostatectomy.—Dr. Martin W. Ware presented a specimen of an enlarged prostrate removed from a patient, sixty-five years old, who was admitted to the Mt. Sinai Hospital on July 22. His trouble dated back five or six years when he began to urinate frequently and got up for this purpose three times during the night. The first alarming symptom that caused him to consult a physician was severe pain in the suprapubic region associated with marked hemorrhages during micturition. He was then catheterized and received some relief. During last May he had another severe hemorrhage lasting three or four days, and he had to be catheterized quite frequently for retention associated with the

Technic of Operation.—An incision was made from the tip of the mastoid to the tip of the mas-

hemorrhage. At the time he presented himself for admission to the hospital he was being catheterized during the day as often as six or seven times, and he had complete retention when admitted. He appeared to be a well-nourished man and had a moderate degree of fever, 99° to 100° F., pulse in good condition. His bladder was found to extend to the umbilicus and he was unable to pass a single drop of water. He was immediately catheterized and 60 ounces of urine, bad smelling, cloudy and turbid was removed. There were no evidences of nephritis notwithstanding the large quantity of cloudy urine passed. He was placed in bed and watched for a few days. Examination per rectum revealed a mass, not very large; a cystoscope was introduced and there some bleeding was seen to arise from the prostate which jutted into the bladder; there was a moderate enlargement of both lobes of the prostate. No untoward results followed the introduction of the cystoscope. He was given the option of operation and accepted. A perineal prostatectomy was performed, the perineal route being selected because the prostate was within reach of the finger; although the suprapubic route might have been as easily performed the perineal route was selected because of anatomical reasons. Nitrous oxide gas was used and the prostate was removed with ease in fifteen minutes. A perineal drainage tube was introduced. Within forty-eight hours the man was in perfect condition and wanted to get up and stand; he was allowed to do so. On the third day he got into a chair, and before a week was up he walked about the ward. At the end of three or four weeks the sinus in the perineum closed and then he had the same absolute retention that he had on admission. There had been no leakage. The cystoscope revealed at the neck of the bladder a condition frequently found in females especially, *i.e.*, edema of the bullosum vesicæ tissues. Faradization of the bladder both by urethra and by rectum was of no avail, and he went away but to return again. Then the cystoscope revealed the edema had entirely disappeared. The endoscope showed a prominence at the site of the verruca montana which might have been sufficient to cause the obstruction. It was cauterized with actual cautery and later Bottini's operation was performed. All treatment applied was of no avail. It was then decided to do a suprapubic cystotomy but nothing was found. The bladder was so atonic that a portion of the bladder wall apparently fell against the urethral orifice. This case showed that the contention of Sir Henry Thompson and Guyon was not absolutely wrong. Such bladders may gain their tone.

Dr. Ware presented a second specimen that he had removed from a patient seventy years old. The symptoms prior to his admission to the hospital were typical of enlarged prostate. He had frequent micturitions associated with hematuria and quite a temperature; had had to be catheterized five or six times a day; occasionally he had retention. The rectal examination showed an enlargement of the prostate. The cystoscope showed that no stone was present. The residual urine amounted to four ounces. There was a marked cystitis. There were some hemorrhagic patches on the bladder wall. January 27 he entered the hospital because of retention. On July 8 he was operated upon under nitrous oxide anesthesia; the suprapubic operation was performed in twenty minutes. The suprapubic wound did not close until August 20. Then the condition of the patient was such that he had only one ounce of residual urine. The cystitis had not been markedly benefited. At the end of six weeks he still had residual urine. He was then discharged. The physician who had him in charge said that he had not been markedly improved and he still had to use the catheter.

These two cases reported by Dr. Ware were intended to show that all patients on whom a prostatectomy technically successfully performed were not markedly relieved at once.

Dr. Howard Lilienthal, in the discussion, asked Dr. Ware if, in his first case, it would not have been better to have done the suprapubic operation in the first place. Was the bladder drained?

Dr. Ware replied that it was drained.

Dr. Lilienthal did not think it possible for prolonged drainage in itself to cause a shrinkage of the bladder. The function of urination would come back after the removal of an obstruction unless there had been something more than mere overdistention of the bladder walls. If the trouble had been due to central nervous disease, operation might not cure. It seemed to him that if the suprapubic operation had been done in the first place it would have saved this patient considerable trouble.

Dr. John Van der Poel said he had had a somewhat similar case of perineal prostatectomy with comparatively little result, where it was difficult for him to make out the middle lobe. The patient was relieved of his retention after operation, but since then he had had frequent urination, almost as often as prior to operation. He has now two or three ounces of residual urine, and it is suspected that there is a bar or middle lobe, which had not been detected at the time of the operation. The results in these operations were not always gratifying. With reference to Dr. Fuller's case, he said he had introduced the cytsoscope in patients with frequent urination, in order to exclude any bladder lesion, where the instrumentation seemed to give relief in much the same way as passing a sound seemed to do in such cases. He believed that most of the cases of tuberculosis of the bladder got along far better without local treatment, relying upon hygienic and other measures. Dr. Cabot, of Boston, illustrated this fact in the reports of several cases he has published, where complete recovery had been reported.

Dr. Thomas H. Manley referred to a patient, an old man who had entered his service at Harlem Hospital a year ago, who came there for relief of urinary retention. He stated that his prostate had been removed at the New York Hospital, two years before, but without relief. He bore a transverse scar in the perineum; and examined for rectum, showed no trace of prostate. Dr. Manley said that in the bladder of those beyond middle life, there were often senile, with organic changes in their walls. In these cases an enlarged prostate was but one factor in urinary obstruction.

Dr. Franz J. A. Torek said that the report of Dr. Ware's first case reminded him strongly of spinal cord disease. He had once a case presenting similar symptoms with retention of urine, the condition existing twenty-eight years. He did a Bottini operation for hypertrophy of the prostate with absolutely no good following. A suprapubic fistula was made at a later operation, and this relieved him considerably.

Dr. Joseph Wiener said that one should bear in mind that every case of retention occurring in old

men who happened to have an enlarged prostate could not be cured by prostatectomy. Of course where there was an enlarged prostrate which caused retention of urine the removal of that prostate would always relieve the condition.

Dr. Parker Syms said that when one operates for obstruction to urination the successful removal of the cause of obstruction, as an enlarged prostate, does not necessarily cure the results of this obstruction; in other words the bladder often requires careful treatment after operation. In this regard some of Dr. Syms early cases of prostatectomy were more favorable than some of his later ones; that is to say many of his later cases have required very careful after-treatment to cure cystitis and other damage which had been produced before operation. Dr. Syms spoke of two patients now in Lebanon Hospital who had been operated upon in other hospitals by the suprapubic route. One is a hopeless invalid, and Dr. Syms thinks that this is on account of the route chosen. The operation wound had not healed at the end of two years, during which time his bladder had become contracted and seriously damaged by infection. The other patient is not in so serious a condition, but his bladder is contracted because the wound was many months in healing. However, his bladder is now being dilated, and it is hoped that he may make a fair recovery.

The Chairman asked Dr. Ware if the atonic condition of the bladder in the first case he reported was recognized before the prostatectomy was performed, which was answered in the affirmative. Continuing, the Chairman said that the discussion pointed out quite clearly the necessity for careful discrimination before deciding whether perineal or suprapubic prostatectomy should be performed in a given case. Dr. Ware's case under discussion reminded him of an experience he had last summer with a patient upon whom he performed perineal prostatectomy in whom a suprapubic prostatectomy, as it turned out, would probably have yielded better results. The intravesical portion was so large and was situated so high that it was impossible to remove it all through the perineum. Prolonged drainage of the bladder failing to accomplish the desired result, he incised the intravesical portion of the prostate with the Bottini instrument by way of the perineum, as practised by Chetwood. It was feared that the patient would not stand a suprapubic prostatectomy as a secondary operation. At a subsequent meeting he hoped to give the net result in this case. He agreed with Dr. Van der Poel's experience regarding the effect that sometimes follows an exploratory instrumentation of a tuberculous bladder; but he called attention to the fact that this temporary improvement does not follow subsequent, repeated instrumentation. He thought it was now generally agreed that vesical tuberculosis should be treated hygienically, as Dr. Van der Poel had said.

Dr. Ware closed the discussion. The specimens were not presented in order to exploit any particular method of operation and he did not intend to convey the impression that prostatectomy was the panacea in all cases of urinary retention. It was nothing of the sort. All cases could not be cured. Watson and other men whose statistics could be relied upon had stated this fact. Socin in *Deutsche Chirurgie* states among 77 cases of suprapubic prostatectomy, 31 per cent. were completely cured; the mortality rate was 20 per cent. The public should not be told that these operations were not attended with any risks at all. Regarding the possibility of any nervous lesion to account for the retention referred to by Dr. Torek, he answered by saying that there was absolutely no such lesion; the patient had been examined by a neurologist and no lesion was demonstrable. The mucous membrane of the bladder was rather smooth and the muscular walls had quite an appreciable thickness. After prostatectomy was performed and the catheter left in the bladder he seemed to have quite a good deal of expulsive force. How the bladder could regain its tone after being out of work for long periods of time he failed to see.

Calculi Removed by Litholapaxy.—Dr. James Pedersen presented two cases:

Case I.—The patient is a well-developed boy, fourteen years old. Painful urination began when he was two years old. Medical treatment gave temporary relief until his sixth year. Since then the symptoms have been progressive and have become especially severe within the past two years. Without anesthesia a small bougie-à-boule introduced into the bladder, at once encountered a calculus. After the usual preparatory treatment of the bladder its capacity was found to be five ounces. The operation was performed under general anesthesia. The meatus, which measured 22 F., was divided to 28 F. The calculus was extremely hard; as the crushing progressed some sections of it were found to be much harder than others. The fragments were evacuated through a 28 F. evacuating tube. The patient left the hospital on the fifth day. Since the operation (October 24) patient has been entirely free from pain; but some vesical irritability persists. He is being treated for this by his physician who brought him to Pedersen. As is his custom, he had the patient report at his office two weeks after the operation and searched the bladder for any stray fragments or small particles that had escaped evacuation at the time of operation. Evacuating tube 24 F. was used and proved the bladder entirely clear of fragments.

Case II.—The patient is fifty-two years of age. No bladder symptoms up to a year ago when intense burning during micturition developed extending along the length of the urethra. Frequency, urgency and slight hematuria followed. On July 12, 1904, cystoscopy was performed, without anesthesia. The tolerance of the bladder admitted five ounces. Two calculi was discovered; one the size of a hazelnut the other twice that size, lying together in the post-prostatic pouch. With a slender lithotrite the smaller was seized and the larger was moved about to prove that is was free in the bladder. Operation July 15, 1904, under general anesthesia. The patient was out of bed on the third day and returned home on the fourth day. He reported at my office on the sixth day that nocturnal urination had ceased and that he was able to retain urine at will during the day; but that a trifling sensation during urination remained. Six days later all symptoms had disappeared and the urine was normal. Two weeks after the operation cystoscopy revealed two small grains at the base of the bladder. These were evacuated in the usual way.

Observations on Twenty-eight Cases of Prostatectomy.—Dr. J. Bentley Squier, Jr., read this paper. It will be found on page 294 of this issue of the MEDICAL NEWS.

Dr. L. Bolton Bangs, in the discussion, said he was much interested in the progress that had taken place in prostatic work during recent years. It cer-

tainly is encouraging and he wished to congratulate the reader of the paper for the frank manner in which he had presented his experience. He said he had been particularly interested lately in reading the papers on this subject; many were very instructive and many were very dogmatic and made one wonder if we were yet living in the dark ages and what the object of the paper was. He thought it would be more creditable if surgeons who wrote so many articles should pay more attention to the question of diagnosis; it seemed that the question how to operate was of less importance than the question of whether operation was indicated or not. The details of diagnosis seemed to be overlooked. again the after results had not been reported as fully as he would like to see them. The operation of prostatectomy had not met all his expectations and had not given the same satisfaction that he had been led to hope for from the reports of the experiences of his colleagues. He did not believe it was necessary to say that because a man had some residual urine and a certain amount of prostatic hypertrophy he must be subjected to operation; there were many cases notwithstanding the presence of residual urine which did not need this operation, or any operation whatever. Nor would they necessarily be placed upon catheter life. There were cases also whose postoperative condition was not improved. Neither of Dr. Ware's cases was improved and Dr. Bangs had had somewhat the same experience in dealing with younger men whose bladder were infected and who required long continued drainage. Similarly he found that prostatics with prolonged obstruction causing secondary changes in the bladder, even after the prostatic obstruction was removed, were not appreciably relieved of their symptoms. The conditions that existed prior to operation should be more carefully inquired into. The reader of the paper had called attention to a point which, he confessed, he had not paid sufficient attention to, and that was the question of the discrimination of the patients. Not long ago Dr. Bangs attended a meeting of medical and surgical men at which a paper was read by a distinguished member of the profession who stated that he did not attach much value to the opinions of hospital surgeons, because their opinions were based upon experience with the class of cases met with in hospitals whose social conditions required radical measures, and therefore the surgeon's judgment often was biased when considering the needs of the better classes. Therefore, it seemed to Dr. Bangs that we should discriminate more carefully. For example you will meet with individuals in the higher walks of life who have entered catheter life and who go on for years in excellent health. Admitting that a bladder with residual urine is a culture chamber, always liable to infection, many of these cases that come under our supervision if given proper and judicous care will not require operation. Catheter life should not always be despised in certain individuals. Hygiene has its place as a preventer of infection. Judicious, thoughtful, refined catheter life was not necessarily dangerous, but we must also discriminate between individuals. With regard to technic he said that many believed that the suprapubic operation was the only operation, while others believed that the perineal was the only correct method. Dr. Bangs believed that only a careful anti-operative diagnosis would enable us to determine just which operation was the proper one. In his opinion the perineal operation would meet all the indications in the majority of cases. There was no difficulty encountered, as a rule, in removing stone by the perineal route and there should not be much difficulty in attacking the prostate by this method. With regard to leaving the so-called "sexual-bridge" according to the technic of Young, of Baltimore, he agreed with the writer of the paper that its possibility was doubtful and made no real difference. Regarding postoperative epididymitis he had seen patients suffering more vital depression from this than from the whole operative procedure. As to following the suggestion made of ligating the vas deferens, he dissented and would not do this as a stock procedure. The question of the difficulty of doing either the suprapubic or the perineal operation did not concern us. He had had more difficulty and experienced more surgical thrill in doing some of the operations of general surgery—for example in dissecting out a tumor of the base of the neck, than in any prostate operation which he had yet encountered. The important question seemed to be, is an operation indicated; if so, what operation?

Dr. Eugene Fuller believed that many people were operated for prostatic senile hypertrophy when none existed at all and when the cause of trouble was to be found simply in inflammatory conditions following gonorrhea, for instance. In such inflammatory cases there would of course be found nothing to enucleate. Cases of developing prostatic obstructions should be more considered. For instance, take a man in the late fifties with beginning prostatic obstruction; it did not seem to him that, in such cases, provided the general condition of the patient was good, it was worth while to procrastinate about operation. If such a man wished to live but a short time, all right; but if he wished to live a long time then it was best to operate and remove the prostate which otherwise would go on developing. Regarding the question how such an operation would leave these patients in 99 per cent. of the cases they should be left in a satisfactory condition. Such men who refuse operation cannot get well, and if they should wish to go away, as to the woods hunting or fishing, they must take catheters and be prepared for accidents which may happen; anyway they run a risk which they would not run of they submitted to operative procedures. It was like trifling with an inflamed appendix. But, if a man develops an obstruction while he is in his seventies, this then is another class to consider; the surgeon here should be more conservative and more inclined to operate only when the catheter should be found to fail. Dr. Fuller said the prostate could be removed either by way of the perineum or suprapubically. He had done the perineal operation of prostatectomy about 75 times and the suprapubic one about three times as many times. Many believed the perineal operation to be the one of choice in certain instances. Other questions besides getting the prostate out must be always considered in selecting the route. Dr. Fuller here related the history of one of his cases showing the point that one could not rely entirely upon one route; it was necessary to individualize in such operations as in many others. If a bladder was found to be absolutely atonic the perineal operation was not the one of choice; but if the bladder was strong and hypertrophied and had sufficient expulsion power, then the perineal operation was, as a rule, the proper one. The question of the sexual function in connection with prostatectomy had of late received considerable attention. In the speaker's experience prostatectomy was more apt to improve that func-

tion than injure it. If one exercised sufficient care it was not necessary to damage the sexual apparatus at all. In many cases with large hypertrophies of the prostate, the glands pressed upon the ejaculatory ducts, and after prostatectomies in such instances the sacs regained their tone and the sexual function correspondingly improved. In the performance of the perineal operation Dr. Fuller used a small incision and divulsed the tissues much as Dr. Syms did, although he did not think it was necessary to use the balloon. He condemned the use of sharp-clawed instruments employed as tractors. Dr. Fuller said that as far as he was personally concerned the operation of prostatectomy was way beyond its experimental stage. He felt that with him it was no more of an experiment than was the removal of the appendix with the general surgeon.

Dr. Parker Syms agreed with Dr. Fuller's statement that prostatectomy was beyond the experimental stage inasmuch we have still a great deal to learn. Regarding indications for operation he is inclined to be rather more conservative than some of the other speakers, for he believes we should wait until the bladder, urinary apparatus, or general health of the patient shows that damage is being done by the prostatic obstruction. A moderate amount of residual urine is no indication for prostatectomy, and he does not think we should operate in anticipation of bad results, simply because of the gradual enlargement of this gland. One should wait until there is evidence of injury present and then operate.

In regard to catheter life he thought that a patient in the hands of one as skilful as Dr. Bangs might perhaps go along very safely, but that does not represent the criterion of catheter life. Dr. Syms feels that for a patient about to enter catheter life it would be far safer to operate than to allow him to take up the use of the catheter. Some months ago he roughly estimated the mortality in those of his patients who had declined operation and continued the use of the catheter; about 50 per cent. of these patients had died within a year and a half to two years. He had expressed himself so many times before on the technic of the operation that he hesitated to say much more. He believes the perineal route to be the only one of choice for anatomical as well as surgical reasons, but the reports of some of the gentlemen would show that good results might be obtained by the suprapubic operation. The operation should be performed with as much speed as possible and the lower route is the quicker. The suprapubic operation may be easier, but he preferred to work by the peritoneum. The after-effects of the suprapubic operation were more serious than those of perineal prostatectomy. If he expected to cope with hemorrhage he preferred to operate by the perineal route. As he operates, the bladder is not injured except by the introduction of the finger, and if there is any liability to hemorrhage it can be easily controlled because the blood cannot pass into the bladder if the tube fits properly and one has only to pack the space from which the prostate came. It is also true that the prostatic wound does not come in contact with the urine until after the drainage tube is removed. In perineal prostatectomy there is but little damage to surrounding tissues and there should be no damage to the bladder. He opens the prostatic sheath and enucleates the prostate without tearing or lacerating the lobes. In a properly performed perineal prostatectomy there should be no hemorrhage. He never expects to lose more than an ounce or two of blood. He lays stress on the median incision in the perineum. He believes that it is far better than the dissecting operation of the French which has been presented to us by Young. He paid tribute to the work of Goodfellow, of San Francisco, who antedates us all in perineal prostatectomy. His work was first published in 1892; he uses no retractor, but enucleates the prostate through a small incision made in the perineum. Goodfellow reports over seventy cases without a death. Dr. Syms operates through a small median incision. The membranous urethra is opened and the tissues are pushed back and on to one side until the prostatic sheath is exposed. This is opened by a vertical incision on the left side and through this incision the left lobe is removed. Sometimes the entire prostate is removed through this incision, and sometimes he makes a second vertical incision on the right side through which he removes the right lobe. Goodfellow has shown that it is not necessary to use a retractor. Syms finds his rubber retractor of great use. It pulls down the neck of the bladder and holds the prostate steady, aiding the enucleation. As each lobe of the prostate is removed the space is closed by pressure of the retractor and oozing is checked. With regard to conserving the sexual function as emphasized by Young, of Baltimore, he believes the idea is rather a phantom. In many cases sexual function which has been lost will be restored, and in other cases sexual function will be lost as the result of the operation, and in other cases it will not be affected. The fact that epididymitis is a very frequent complication after operation shows that the ducts are not closed or destroyed, or the friction could not take place. With regard to final results he will only speak in a general way, for he hopes ere long to report his cases in detail. He will only say that his final results have been very satisfactory. His patients have done so well that he is convinced that the operation is a truly scientific and commendable one.

Dr. Martin W. Ware believed that one essential in the right direction was in appreciating the patient's condition by means of the cystoscope prior to operation and he said the consensus of opinion was in favor of doing this. One of the conditions which would lead us toward a rational suprapubic or perineal operation would be one of stone in the bladder; in such cases one would not hesitate to introduce a searcher to find if a stone was present. Therefore, why should one hesitate to introduce a cystoscope and learn the position of the stone? It depended upon the situation of the stone, and its nature, whether the perineal or suprapubic operation was to be preferred. The cystoscope enabled us to choose between these two routes not only in doing lithotomy but also in performing prostatectomies.

Dr. Howard Lilienthal said that taking everything into consideration regarding the time to operate it had been stated once and for all by Paul Thorndike, of Boston, that "when catheter fails to give relief that is the time to operate." Regarding the choice of operation he preferred to do the suprapubic one. He was glad that Dr. Syms changed his opinion expressed some time ago; then he said that it was about as sensible to attack the prostate suprapubically as to attack a tonsil through the back of the head. And yet not every tonsil could be removed through the mouth and incisions in the sphenomaxillary region might be necessary. Epididymitis was more or less common after these opera-

tions; it was also a common complication in prostatism without operation. Dr. Lilienthal thought that a long time would elapse before the final word was spoken regarding the merits of either the suprapubic or perineal operation and he did not believe one should be too quick in deciding any questions regarding them. With regard to the use of the cystoscope, if one had decided upon the suprapubic operation its use would be absolutely unnecessary; but if one had not decided upon this upper route, and wished to gain further information regarding the bladder conditions, then the cystoscope might be a very valuable aid.

Dr. Joseph Wiener said that his personal expeence with this operation was the same as Dr. Howard Lilienthal's and he preferred the suprapubic route for operating because of the good results obtained. The series of good results Dr. Lilienthal had obtained caused him two years ago to adopt it in his work, and this route had always given him satisfaction. His cases had all been done under nitrous oxide anesthesia. The element of time he considered to be of extreme importance, and he usually consumed ten minutes, from the time the knife was used until the packing was in the bladder. He did not believe that any surgeon experienced in this work would tear a hole into the rectum; he did not know of a single case of suprapubic prostatectomy in which this accident occurred. It did occur during the perineal operation. The question of stone in the bladder was an important one and Dr. Bangs had stated that every one could be removed by way of the perineum. He had operated on one case where the stone could not have been removed through a perineal incision. He was surprised to hear Dr. Squier say that in the perineal operation one could break up the lobe of the prostate and remove it. By the suprapubic route one can remove the gland in its entirety which was a decided advantage. In this upper operation there is less hemorrhage; there is the absolute certainty of removing the gland entire and in one piece; one can save a great deal of time by shelling out the gland in one piece. The cystoscope he considered a dangerous instrument in the presence of marked hypertrophy of the prostate. In his early operation he had a few cases of epididymitis; he then passed a sound. In his last four or five cases he placed a catheter in the urethra and closed the bladder wound two days after operation, did not use any sound, and had not had a trace of epididymitis. The perineal operation was one of decided disadvantage in that it required frequent sounding. Dr. Wiener recapitulated as follows: In the suprapubic operation one did more rapid work; a stone could be more readily removed; the rectum was not damaged; the cystoscope was not employed; epididymitis was not common. Other factors that contributed to the success of the operation were, no instrumentation prior to operation; nitrous oxide anesthesia, rapid work.

Dr. John Van der Poel said that, in pulling down the prostate in perineal prostatectomy, his personal preference was for the retractor of Dr. Young, of Baltimore, which was almost precisely the same as that devised in France. Where this retractor was often combined with the finger of the assistant in the rectum there was, as a rule, no difficulty in getting at the organ and, at the same time, the assistant's finger in the rectum often gave timely warning as to the proximity of the rectal wall. He believed that Dr. Young's operation, in saving the sexual bridge, was practically unnecessary in the majority of cases, who were beyond the age of sexual life and, in many cases, time being a very important factor, the general condition of the patients not being of the best, it not being the shortest method of operation, too much time was required for the dissection; as it was preferable to operate quickly, the sooner the patients were off the table the better; hence he did not think the dissecting operation advisable.

BOOK REVIEWS.

A HISTORY OF SCIENCE. By HENRY SMITH WILLIAMS, M.D., LL.D., assisted by EDWARD H. WILLIAMS, M.D. In Five Volumes. Illustrated. Volume I—The Beginnings of Science. Volume II—The Beginnings of Modern Science. Volume III—Modern Development of the Physical Sciences. Volume IV—Modern Development of the Chemical and Biological Sciences. Volume V—Aspects of Recent Science. Harper & Brothers, New York and London.

IT is both flattering and surprising to the medical man to note the great number of physicians who have been pioneers in scientific discoveries. Thus Dr. Julius Robert Mayer (Vol. III, p. 259) discovered the "Conservation of Energy;" Dr. William Gilbert (Vol. II, p. 111) is known as the "Father of Electricity;" Dr. Thomas Young (Vol. III, pp. 215-225) discovered the wave-theory of light; Dr. Joseph Black (Vol. IV, p. 12) discovered carbonic acid and is considered to have been one of the founders of modern chemistry.

Notwithstanding this, physicians as a class are often prone to lose sight of the fact that medicine rests almost entirely upon the application of the principles and methods of other sciences; we know natural science is the foundation upon which medical facts are largely based. The frequency with which chemical and physical laws are daily requisitioned in medical practice is of common experience. What would the opthalmologist do without applied optics, the internist without acoustic laws? It is not inaptly said that medicine is an applied science which receives its sustenance and growth in greater part from the primary sciences—chemistry, physics, geometry and the like.

The value to the medical student of a preliminary education in these sciences needs but little more emphasis than the necessity of the physician's continued interest in these subjects after graduation. Researches in pure science are not often permitted to the practising physician, such as these undertaken by Mayer and Gilbert, but a practical working knowledge of the history of science, its epoch-making discoveries and their portent in advancing our concepts of modern medicine is free to all. This data properly arranged is now at hand in the work before us—The History of Science. The historical digest embodied in the work, its orientation of the scientific trend of thought in the past and present is altogether admirable. It should be a matter of professional pride to us that this excellent science series is from the hands of medical colleagues, Dr. Henry Smith Williams and his brother, Dr. Edward H. Williams, of this city.

The fascination of the science-story is irresistible; its literary charm is co-extensive with the lucid and careful statements of facts in the work. The comprehensiveness of the contents, arrangement and the general book-making are most praiseworthy. The History of Science should form a part of every physician's library, and we believe the professional and lay reader will find

equal delight in these volumes. The work is unique, as there is nothing like it in the English language.

HANDBOOK OF THE ANATOMY AND DISEASES OF THE EYE AND EAR. For Students and Practitioners. By D. B. ST. JOHN ROOSA, M.D., LL.D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School; formerly President of the New York Academy of Medicine, Etc., and A. EDWARD DAVIS, A.M., M.D., Professor of Diseases of the Eye in the New York Post-graduate Medical School; Fellow of the New York Academy of Medicine. 300 pages. F. A. Davis Company, Philadelphia.

THIS is an excellent little book. It contains very briefly and clearly what a student should know and does not confuse the untrained mind with needless descriptions and pictures of what must be learned by clinical observation, nor does it offer the usual assortment of remedies for diseases, the knowledge of which can be acquired only through actual experience.

Exception may be taken to certain views, and the statement that no inconvenience is felt unless astigmatism=0.75 D. or 1. D. is one that might mislead.

The book is well printed, is of convenient size, and is supplied with an elaborate index.

MODERN OPHTHALMOLOGY. A Practical Treatise on the Anatomy, Physiology, and Diseases of the Eye. By JAMES MOORE BALL, M.D., Professor of Ophthalmology in the St. Louis College of Physicians and Surgeons. With 417 illustrations in the text and numerous figures on 21 colored plates. Pp. xxii+820. F. A. Davis Company, Philadelphia.

THIS elaborate and rather ponderous work may be commended for many reasons, and it is an ungrateful task to criticize a book to which the best of intentions and much energy has been directed.

The text shows an extensive acquaintance with the best authorities, and when a personal attitude is apparent, it is of a conservative nature. The treatment of glaucoma may be considered an exception, as undue stress is laid upon removal of the sympathetic ganglion. Sympatheticectomy is the rather clumsy name given the operation by the author. The pictures relating to this subject are not convincing, especially those of the microscopical appearances from which one might infer that there are changes in the ganglia in glaucoma which are characteristic of this disease, which have not been demonstrated by other observers.

The colored plates are good, especially those of the fundus by the practised hand of Miss Washington. The author has had the collaboration of several well-known men in important subjects, and the work has been well done, if somewhat unevenly.

The book is well printed, on good, slightly glazed paper, and contains a very complete index.

THE PATHOLOGY OF THE EYE. By J. HERBERT PARSONS, B.S., D.S.(Lond.), F.R.C.S.(Eng.), Assistant Ophthalmic Surgeon, University College Hospital; Curator and Pathologist, Royal London (Moorfields) Ophthalmic Hospital; Lecturer on Physiological Optics, University College, London. Volume 1. Histology. Part 1. Pp. xiii+388. G. P. Putnam's Sons, New York. Hodder and Stoughton, London.

IT is a matter of sincere congratulation that a work of such importance has appeared in the English language. If the succeeding volumes shall show the scholarly qualities evident in the volume at hand, we have no hesitation in saying that it will stand as a monument of thoroughness and precision, unsurpassed by similar works in any language. It is apparent to anyone who is familiar with our current ophthalmological literature, that a sounder basis of pathological knowledge has been urgently needed. The chief sources of information have been in journals, for the most part German, and have been spread over such an arid space, that familiarity with them is impossible except to those with Teutonic patience and the time to devote to research.

The author disarms criticism, if such were possible, by disclaiming dogmatism and finality, and by assuming in questions where decision is impossible, an admirably judicial tone. He says "It must be admitted with regret that few of the problems before us have been solved. I shall therefore endeavor to set forth the facts which have been discovered. . . . The various theories based upon these facts will be reviewed and weighed, with the object of determining their relative value, and of arriving at the best working hypothesis for directing future research."

The work will be divided into four volumes, the first two dealing with the Pathological Histology of the Eye, the last two with the General Pathology of the Eye.

In Volumes I and II the parts of the eye and its annexes will be taken seriatim and the histology of the various morbid conditions described. In Volumes III and IV the diseases which affect the eye as a whole will be discussed, and an endeavor will be made to trace them to their ultimate causes. This will therefore include such conditions as glaucoma, sympathetic ophthalmia, congenital malformations, etc.

From this statement of the author's purpose, it will be seen that the book is indispensable to all who are interested in ophthalmology, and it is evident from the first volume that the author is exceptionally fitted to undertake this great work.

The illustrations, 267 in number, form an important feature. Most of them are from photographs which have not been touched up, reproduced in half tone; they gain in precision what, in some instances, they may lose in clearness. Comment in detail may be postponed until the completion of the work, which, it is to be hoped, will not be long deferred.

The work of the publishers cannot be too highly commended.

PRACTICAL DIETICS, with Reference to Diet in Disease. By ALIDA FRANCES PATTEE. Second Edition. Published by the author, New York.

THIS book was originally written as a simple manual and text-book for nurses in the classroom or in outside practice, and the recognition accorded to the first edition, has prompted the preparation of a second edition within a year after the appearance of the first. The object of food, food values and their classification, and general rules for feeding the sick, form an introduction to the work, the body of which is made up of a classified list of recipes adapted to various diseases. In addition there are chapters on diet in disease and dietaries, and numerous practical suggestions for adding to the comfort of the patient. Reference to certain proprietary articles in the text might as well have been omitted without affecting the usefulness of the book.

BOOKS RECEIVED.

LABORATORY GUIDE IN ELEMENTARY BACTERIOLOGY. By Dr. W. D. Frost. 8vo, 395 pages. Illustrated. The Macmillan Co., New York.

CLINICAL DIAGNOSIS. By Dr. L. N. Boston. 8vo, 549 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.